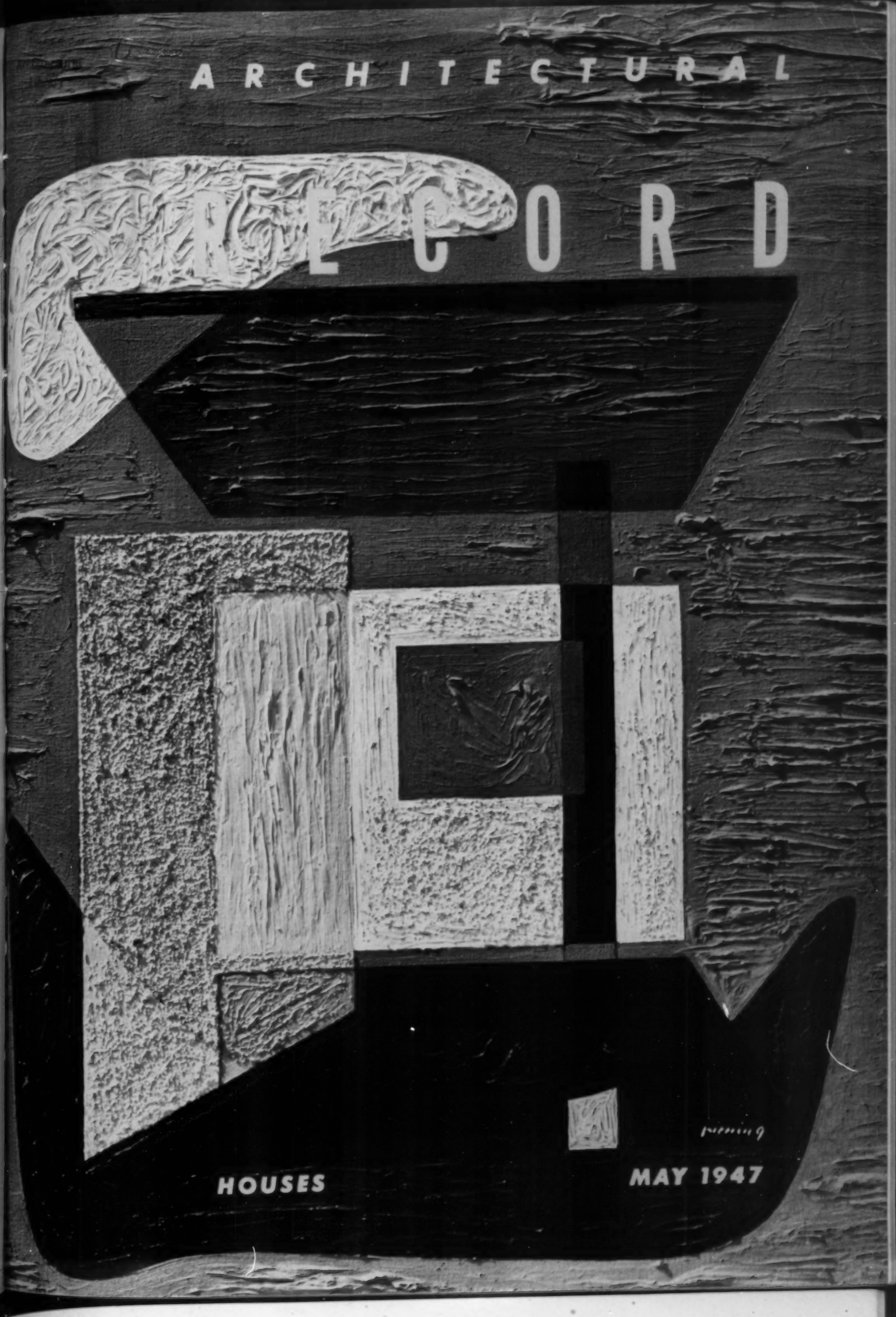
ARCHITECTURAL
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MAY 1947

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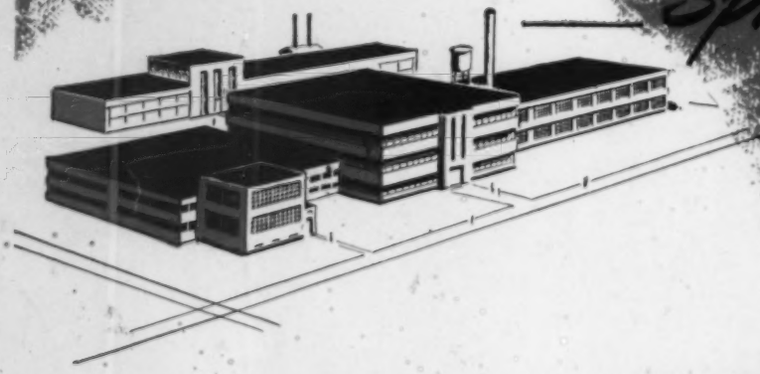

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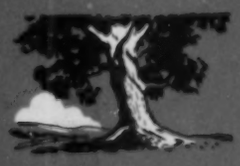

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THE RECORD REPORTS

Banking Authorities Watch Real Estate • Consumer Resistance Is Felt • Building Controls Dwindle Ann Arbor Holds Conference on Hospital Planning

Questions of mortgage money, which scarcely had been a consideration since prewar days, have started to insinuate themselves into the housing picture. A year ago banks were ready to lend almost on anything. Appraisers were going along with the market. The ease of the market was reflected clearly in the growing disuse of FHA insurance, which banks no longer insisted on and which builders, therefore, did not need.

Since then, however, the banking authorities in Washington have become control conscious once more. During the war they took it for granted that too much money was around to supervise. Ambitions to regain lost powers have been stirred up.

Real Estate Being Watched

The various supervisory agencies more recently have been lecturing the examiners who pry into banks' books. Examiners are told to watch real estate which worries the administration. And examiners admonish those bankers who failed to arrive independently at the same point of view. The admonitions, spokesmen for the banking agencies say, are being taken to heart as, they quietly add, "They'd better be."

This development obviously is easy to exaggerate and exaggerations may safely be forecast as banks bit by bit narrow their conceptions of "bankable property." The general money picture is, of course, still one of enormous liquidity, the newest qualifications notwithstanding. There is hardly any likelihood that building will be held down, except in particular cases, through lack of sufficient financing.

Although the banking authorities are most critical of real estate portfolios, they don't stop there. They are also becoming more alive to inventory situations of various building materials. But so far this caution does not blanket any particular material: no circular has been sent out, for instance, advising examiners to watch lumber, say, or cement or plumbing fixtures. Cases of overborrowing in these fields have come up from time to time, nevertheless.

The change is indicated to some extent in FHA figures. Last fall FHA insurance was sought on no more than 7 per cent of the mortgage applications; since then the percentage has advanced to about 20 per cent. This is still far below the 40 per cent to 45 per cent peaks before the war, but it is far above last autumn. The current FHA applications include the usual proportion of refinancing as homes are transferred, which has been a steady accumulation since FHA started.

The FHA is getting more applications to insure single family homes but its own prime interest is to stir up interest in apartments. Business in this department is still far below ideals which the government set but is picking up. Currently about one out of four applications is for a rental property, including, however, mere transfers of ownership.

A strong pick-up in apartment construction seems doubtful at present costs even if Congress punctures or gets rid entirely of rent control. Both government men and builders in Washington say that it is hard to make the figures add up. Costs are high; amortization and interest, therefore, even at low rates must eat into future income. Local real estate situations are unsure. How long present prices will hold up is unknown. Will a builder who goes along on present construction costs lose the value of his capital when and if materials prices drop? These factors, the experts think, won't stop but will deter rental construction.

Consumer Resistance Felt

While official pronouncements by government are optimistic, talk among builders, directly and through their Washington associations, is quite the opposite as regards construction of private residences. Costs still fail to match what the public can afford. The market for $10,000 homes remains firm but homes above this figure take longer to sell. The complaint of the builders, it should be noticed, is one that is characteristic of vendors everywhere: used to selling at once and without effort, a little effort in finding buyers is disturbing.

Public Building Demand Grows

Meanwhile, prospects seem to be tremendous for local public construction, although all sorts of difficulties must be resolved. Local governments are being pressed by Parent-Teachers Associations to repair old schools and build new ones. Facilities which were adequate before the war have worn out or are insufficient for increased student bodies. The local governments in general find that their borrowing capacities just now are at peak — but that building costs also are high. Many are waiting until costs drop, but as they wait they wonder whether declining building costs will be offset by rising interest rates on municipal bonds. The trend toward lower federal taxes, they are well aware, will reduce one present market for municipals — notably estates which want tax exemption.

Building Controls Dwindle

Erosion of building controls goes forward at the accustomed average rate and those who administer them readily admit that, except for budget experts, nobody now bothers to keep up with just what controls remain in force. Both executive and administrative branches have been hacking away at them. The administration would like to retain some kind of power over cast iron soil pipe,

(*Continued on page 10*)

— Drawn for the RECORD by Alan Dunn

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OUTSIDE: Specify double-duty Insulite Sheathing and get two things for the price of one —

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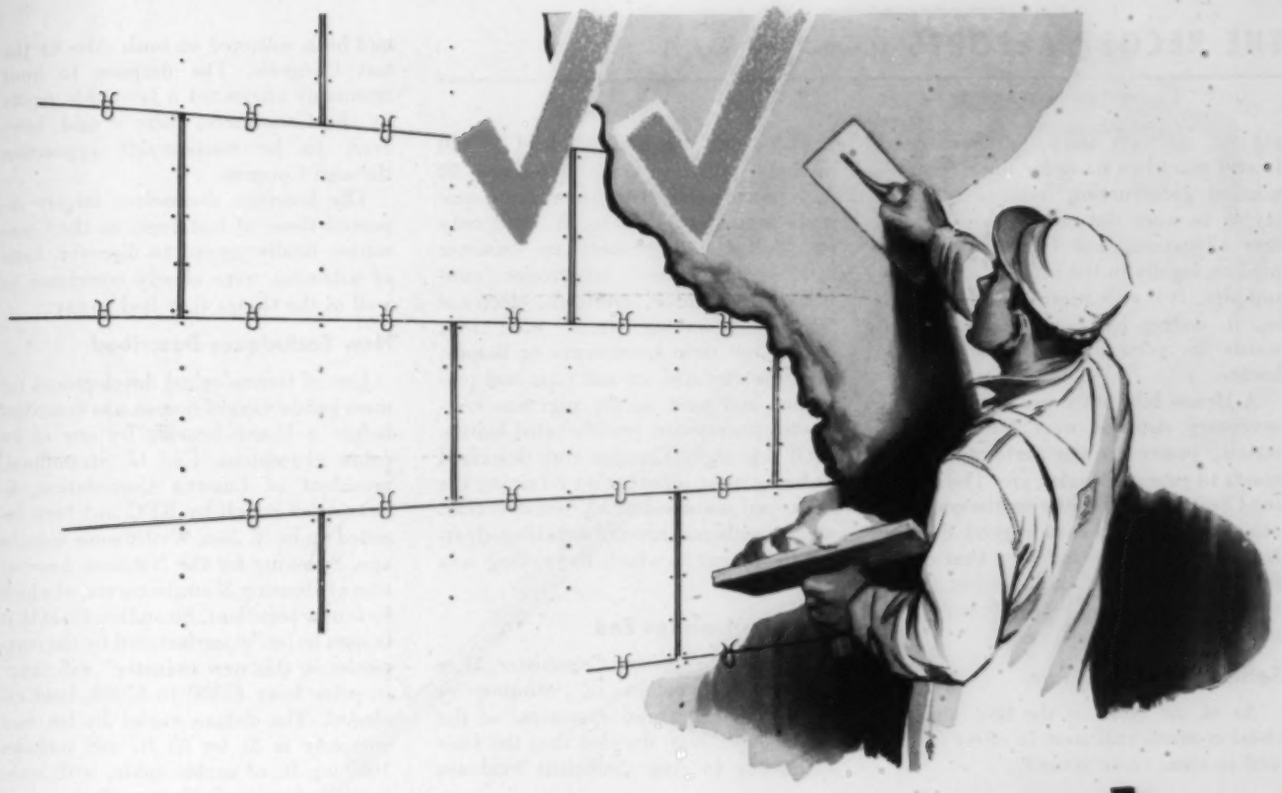

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Refer to Sweet's File, Architectural Section 10 a/9

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 (*Continued from page 7*)

pig iron, millwork and a few other items. It still considers its order limiting non-housing construction important. It is trying to work out schemes for voluntary allocations, but wants to allocate pig iron legally in the interest of getting soil pipe. It is still interested in the 1500 sq. ft. ceiling for single residences. It wants the veterans preference on new homes.

A House bill, however, eliminates all inventory controls over building materials, power to negotiate new contracts to guarantee sales, etc. The Banking Committees considering the continuation of controls heard a good deal of testimony from the industry that curbs failed to speed home construction. Questions of whether rent controls would remain hung in the balance.

Some Controls Remain

As of the close of the first quarter, these controls still were in effect legally and in some cases actually:

Non-residential building held to $50 million weekly; veterans preference, 30 days on sales and 60 days on rentals; new units limited to 1500 sq. ft. with only one full-size bathroom; no summer residences; dealers inventories controlled for lumber, millwork, electrical fixtures, plumbing items, etc.; rent ceilings on new apartments or homes; pig iron allocated for soil pipe and premiums still paid on the pig; new contracts guaranteeing prefabricated houses.

Of this array Creedon was described as being most insistent on retaining the limit on non-residential construction, while members of his staff were investigating the extent to which the ceiling was needed.

Taft Bill Hearings End

The Senate Banking Committee, after listening to a volume of testimony by both proponents and opponents of the Taft bill (S. 866) decided that the time had come to stop. Sufficient evidence had been collected on both sides by the last Congress. The decision to limit testimony suggested a favorable report by the Committee; there is said, however, to be considerable opposition through Congress.

The hearings themselves largely repeated those of last year, as the Committee finally agreed to discover. Lists of witnesses were closely correlated as well as the things they had to say.

New Techniques Described

Use of technological development for mass production of houses was described before a House hearing by one of its prime champions, Carl G. Strandlund, president of Lustron Corporation, financing of which by RFC had been insisted on by Wilson Wyatt some months ago. Speaking for the National Association of Housing Manufacturers, of which he is now president, Strandlund said that houses to be "manufactured by the companies in this new industry" will rang in price from $5500 to $7000, land excluded. The deluxe model by his own company is 31 by 35 ft. and includes 1000 sq. ft. of usable space, with some built-in furniture. Costs will drop and materials too.

"The manufacturers of these houses," he said, "are using the very best architectural talent available because the cost for this service will be spread over a large production schedule. As a result, beautiful designs are being achieved which will have a great appeal to the consumer." He said one of his models has 36 different effects so that in a 36-home project no two would be identical. He said that 20 companies are in the field of mass production.

Labor legislation was delayed many weeks by disagreement within committees on how far Congress should go. Disagreement reflected both primary differences among legislators and consideration of a possible executive veto. But it was clear that all groups agree to get rid of secondary boycotts such as had affected construction in many areas. Building industry closed shop contracts, it appeared, would not be disturbed.

Labor Decisions Made

Meanwhile the Supreme Court decided against the Brotherhood of Carpenters and in favor of lumber interests which charged that they were being kept out of the San Francisco Bay area of California. Outside millwork was kept outside. Such prosecutions previously had been stopped by virtue of a clause in the anti-injunction act which bars action against trade union or trade association officers without clear proof of individual guilt. Court finally decided that this does not apply to anti-trust case actions.

(*Continued on page 12*)

ANN ARBOR CONFERENCE

Hospital architects, consultants and doctors descended on Ann Arbor in such numbers that Dean Bennett must have wondered just what he had started. This, the third annual conference on architectural topics sponsored by the College of Architecture and Design, University of Michigan, was devoted to hospital planning, attracted such numbers of specialists as to crowd the rooms of the Union Building and pack the luncheons almost to the point of second tables.

Doctors selected for the speakers' panel talked to the architects, the architects talked to each other and to the doctors, and nurses were present to talk up to both. But as the discussions waxed more heated the groups broke ranks until there seemed to be complete disagreement all around. Which is one way of saying that the conference really got down to cases, progressed beyond the stock phrases and stock plan solutions, and clearly demonstrated that hospital planning neither admits of standard solutions nor puts any ceiling on ingenuity. Dean Wells Bennett played the gracious host and let his performers attack each other with uninhibited enthusiasm.

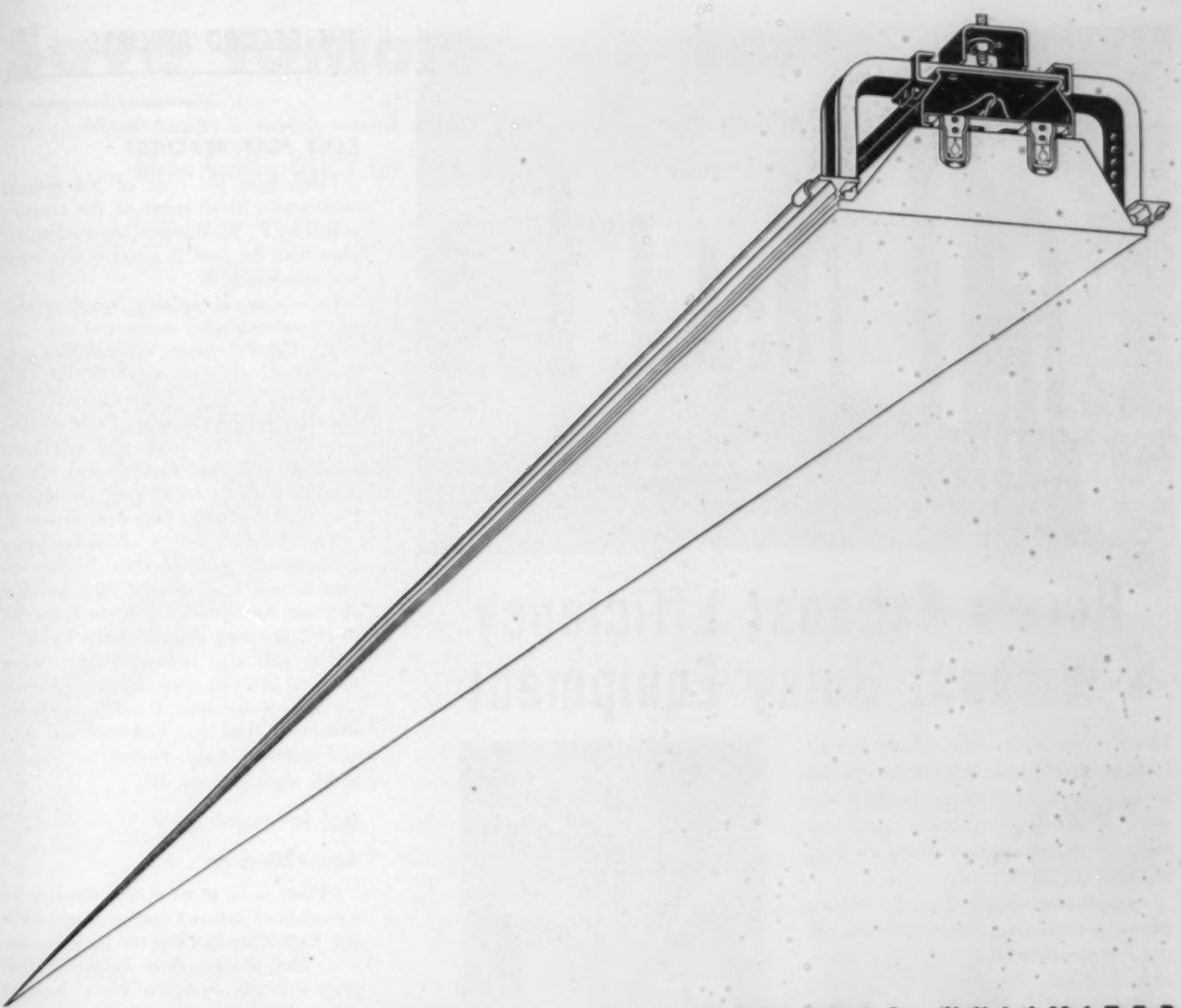
The program began, at a low level of controversy, on Thursday evening, April 3rd, with a session on the veterans' hospital program, by Lt. Col. Harry E. Brown of the VA, and H. Eldridge Hannaford, architect, with Addison Erdman, architect and author, and Roy Hudenberg, Secretary, Council on Hospital Planning and Plant Operation, American Hospital Assn., leading discussion.

Another session was devoted largely to the Hospital Survey and Construction Act, handled by George Bugbee, Executive Director, American Hospital Association, and Marshall Shaffer, chief architect for the U. S. Public Health Service. The Michigan hospital program, carrying along this federal effort, was described by Graham L. Davis, Director, Division of Hospitals, W. K. Kellogg Foundation, and Lewis J. Sarvis, architect, and Adrian Langius, architect and director of Michigan's building program.

Dean Joseph Hudnut, Harvard, pleased his luncheon listeners with a typical bit of Hudnut inspiration in anecdote, springing from the story of his visit to an unusually depressing new hospital, which, according to its superintendent, was "planned by so many experts, was so functional, that we had no need for an architect."

The plain speaking really began with a talk by Dr. Basil C. MacLean, of Strong Memorial Hospital, Rochester, who challenged architects with a "major and a minor decalog," and continued by Dr. Robert H. Bishop, Jr., Director of University Hospitals, Cleveland; Isadore Rosenfield, architect and hospital consultant; Thomas F. Ellerbe, architect who has done the Mayo work; Nathaniel A. Owings, of Skidmore, Owings & Merrill, architects; and others.

The program was arranged by a committee consisting of: Kenneth L. Black, chairman; Amedeo Leone, Alden Dow and Walter Rolfe. Alden Dow was named chairman of the conference for the coming year.



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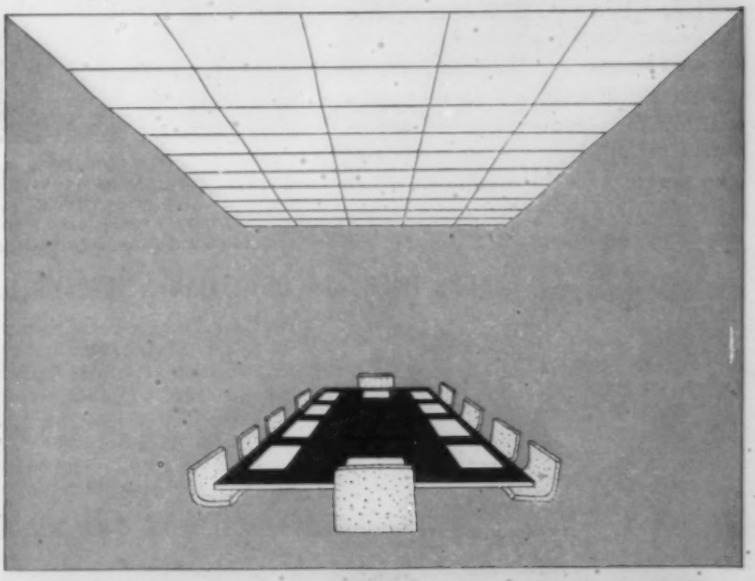

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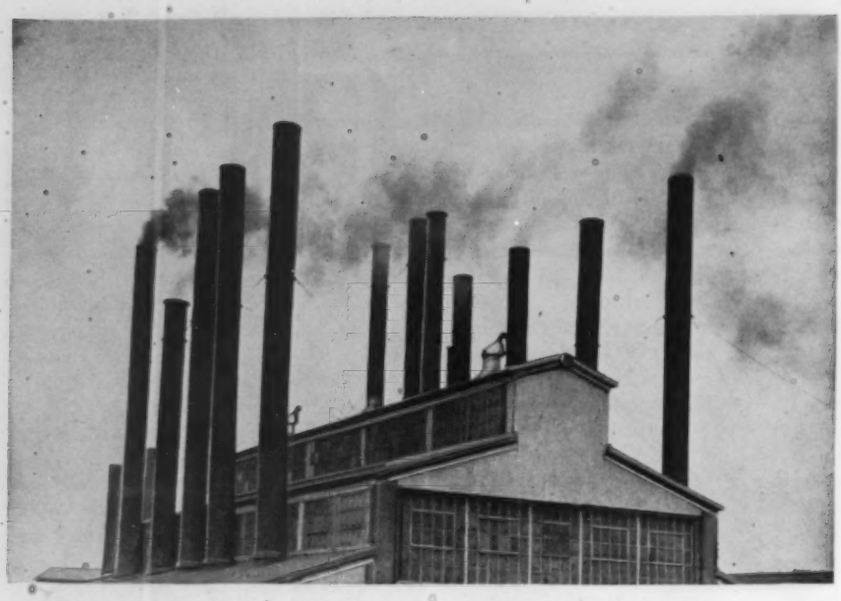

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Effective *space-saver* for exhaust installations! The Propellair drum-type fan is actually a short stack or duct section. It mounts vertically, horizontally, or at any angle—often without additional support.

Specifically adapted to handling gases of corrosive characteristics, excessive temperatures, or high moisture content, drum-type fans have motor located *safely* and *conveniently* outside air stream. Fan bearings are cooled, when necessary, by outside air drawn through the tube enclosing the belt drive.

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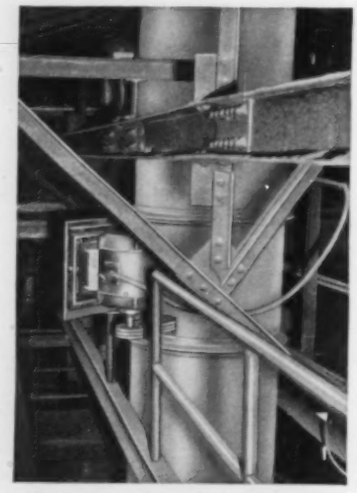

• Propellair drum-type fans mount directly in stacks or ducts—require practically no space at all. Mueller's Plant Engineer, J. W. Tielking, says, "They're easy to install in crowded quarters."

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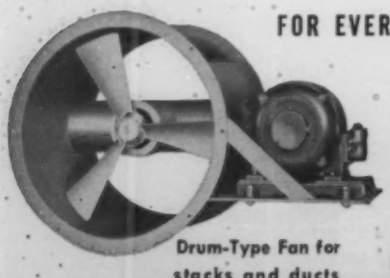

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THE RECORD REPORTS

(*Continued from page 10*)

COST PEAK REACHED?

Fifty-three per cent of 268 general contractors in all parts of the country polled by F. W. Dodge Corporation, believe that the peak in construction costs has been reached.

In some areas, notably New England, the South Atlantic states and the East South Central states, opinion was preponderant, at least two to one, that costs had attained their highest level. Only in the Pacific states was opinion general that the peak had not been reached, and here further cost climbs ranging from 11 to 12 per cent during the current calendar year were expected.

The minority — 126 of the contractors polled — believe that further increases can be expected, the average increase anticipated by them being 8.7 to 10.2 per cent above current levels.

The poll also indicated that prices for most building materials, with the exception of lumber, Portland cement, structural steel and cast-iron soil pipe and fittings, have tended to remain stable since January 1st.

WHAT THEY SAY . . .

About Housing

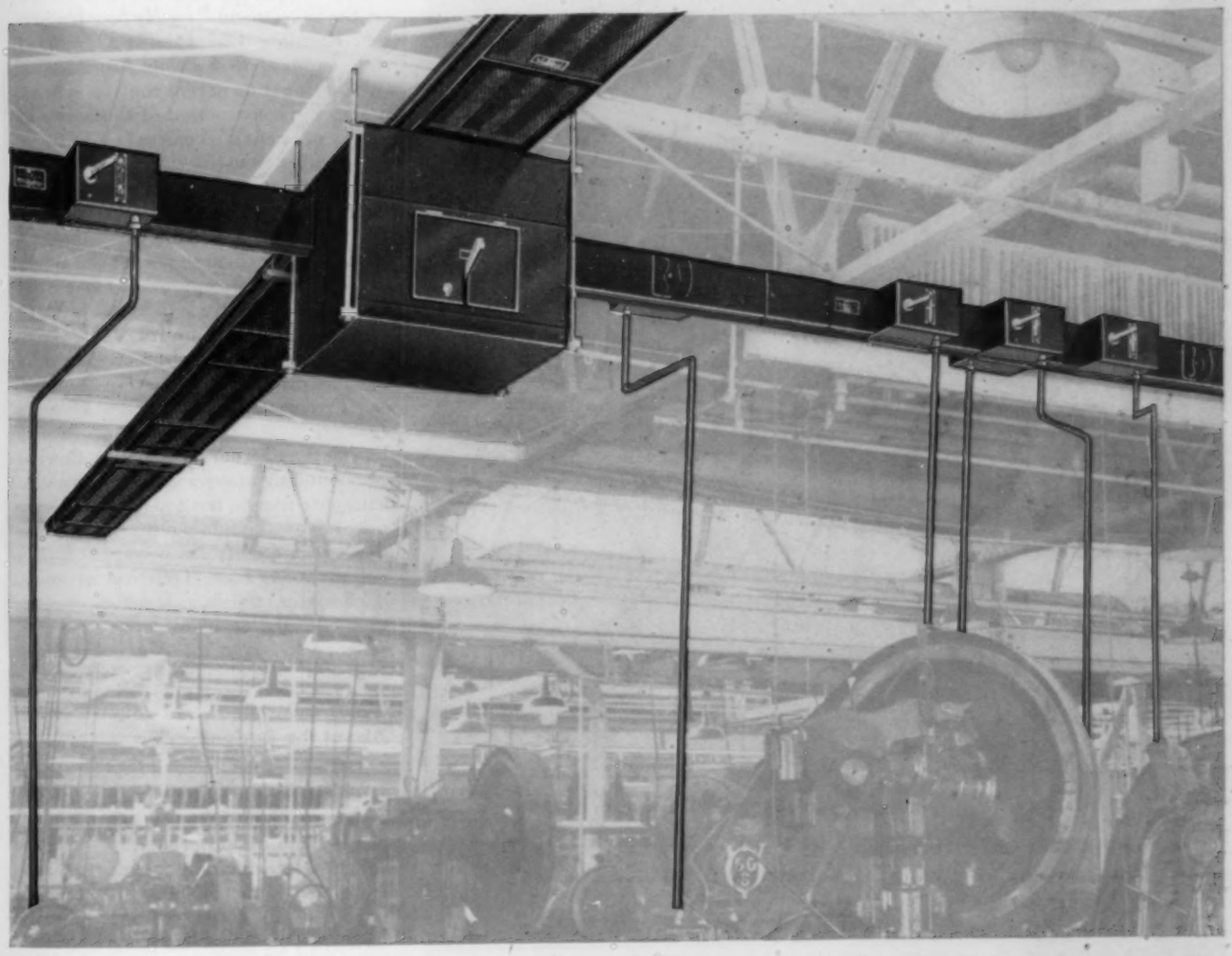
"There is no place in this country for a peacetime housing czar as proposed in the Taft-Ellender-Wagner housing bill. . . . The construction industry itself proposed the creation of a housing commission of the general type specified in the bill to coordinate the activities of the various federal agencies dealing with housing matters, but there is no need whatsoever for a permanent housing administrator. In the effort to justify his existence on the payroll and to expand the scope of his authority, an overall housing administrator inevitably would attempt to maintain governmental control of the building industry. . . . Although the administrator is described in one part of the bill as a mere coordinator of housing activities, other sections make him the director of a far-flung urban redevelopment program and make him responsible for public housing policy. We hold that these diverse responsibilities are incompatible. . . . If there is to be an agency devoted to public housing, it should be separate from those agencies which are devoted to helping private enterprise meet the nation's housing need." — *Douglas Whitlock, Chairman, Building Products Institute.*

"Not more than 50,000 permanent dwelling units completed in 1946 were for rent exclusively. The reason for this small total is that risk capital just cannot be expected to invest in rental construc-

(*Continued on page 14*)

Save tomorrow's costs — today

Meet today's needs—and match tomorrow's—with BullDog BUStribution Systems . . . BUStribution DUCT for plug-in power and Ventilated Lo-X Duct for feeder lines.



BullDog Lo-X Feeder Duct blocks two blows at plant efficiency—voltage drop and temperature rise.

When voltage drop pinches power supply, output of motors and lights must suffer. And when temperature rise reaches dangerous heights, heat takes its toll on the life of the distribution system.

But BullDog Lo-X helps you to lick both of these problems for your clients. Unique design and arrangement of the bus bars, plus adequate ventilation, insures maximum conductivity and rapid dissipation of heat.

Economy doesn't stop there, either. Rugged construction cuts maintenance costs, and when major production changes require alterations of feeder lines, BullDog Lo-X can be dismantled, moved and reinstalled with complete re-use of all materials.

BullDog Plug-In BUStribution DUCT meets the challenge of change. Machines can be moved and be back in production with minimum losses in time and in effort, thanks to the high flexibility of this modern branch circuit system.

Every ten-foot section of Plug-In BUStribution DUCT has ten convenient outlets. That means no re-wiring, no addition of fixed outlets. Electricians need only raise the plug to the nearest duct opening, snap its contact fingers over the bus bars and bolt the plug to the casing. The whole job can be done in a matter of minutes and without interruptions for the rest of the line.

Like all BullDog Bus Duct systems, BUStribution DUCT is made in prefabricated, standardized sections for easy installation and for dismantling and reinstallation without scrapping any parts.

Call a BullDog Field Engineer. He'll show you installations of these two modern systems in a plant close by. Or, write BullDog direct for detailed folders.

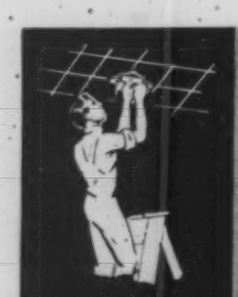
ADEQUATE WIRING SERVES AND SAVES

BULLDOG

ELECTRIC PRODUCTS COMPANY

BullDog manufactures Vacu-Break Safety Switches — SafToFuse Panelboards — Superba and Rocker Type Lighting Panels — Switchboards — Circuit Master Breakers — "Lo-X" Feeder BUStribution DUCT — "Plug-in" Type BUStribution DUCT—Universal Trol-E-Duct for flexible lighting—Industrial Trol-E-Duct for portable tools, cranes, hoists.

Detroit 32, Mich. Field Offices In All Principal Cities. In Canada: BullDog Electric Products of Canada, Ltd., Toronto.


Attach hanger strap to outlet box.

Screw stems into channel.

Slip canopy over stems.

Slide stems into slots of hanger straps.

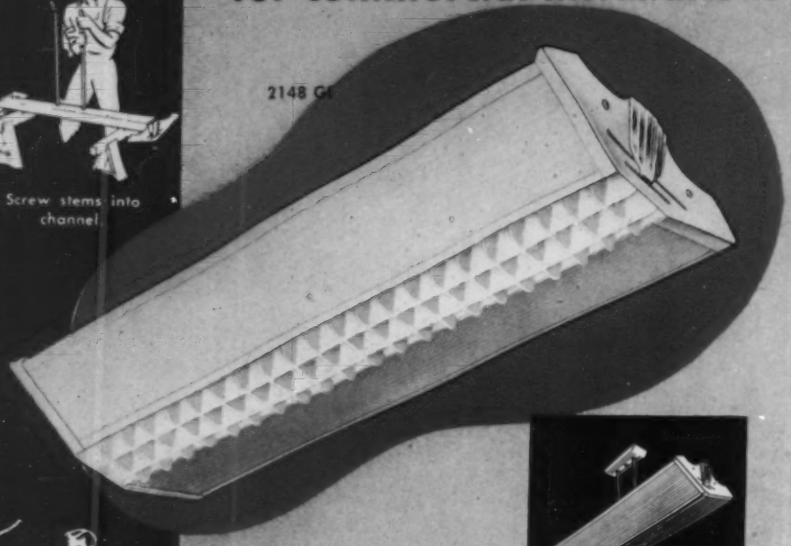
Position canopy. (The job is done.)

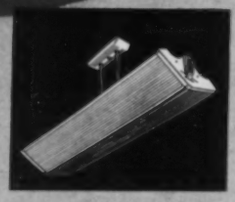
NEWEST SILV-A-KING FLUORESCENT FIXTURE

THE *Vanguard*

for commercial installations

2148 GL




Can be suspended as illustrated

A quarter-century of quality engineering stands behind the new SILV-A-KING "Vanguard." Install it in offices, stores, showrooms, hospitals, and schools — to satisfy the most exacting demands!

"VANGUARD" QUALITY FEATURES:

LOUVRE Egg-crate louvre shields lamps, provides maximum diffusion.

SIDE PANELS Steel frames eliminate danger of sharp edges, add strength. Securely top-hinged to facilitate maintenance.

GLASS Frosted ribbed glass panels intensify light diffusion, remove glare.

SLOTTED END PIECES Engineered to provide soft light glow. Eliminates dark ends.

CANOPY AND STEMS (Optional) Precision fitted. Matte aluminum finish.

STANDARDS I.B.E.W., A.F. of L., approved and listed by Underwriters Laboratories, Inc.

FINISH All metal surfaces in high-temperature, baked white enamel of high reflectivity, lasting quality.

New-Type Hanger Strap, for easy suspension installation . . . a one man job!

Hinged mechanism allows side panels to open and plumb themselves, for easy access.

Write for new "Vanguard" Bulletin!

BRIGHT LIGHT REFLECTOR COMPANY, INC.

Fairfield at State, Bridgeport 5, Conn.

Subsidiary of Bridgeport Pressed Steel Corp.

SILV-A-KING LIGHTING EQUIPMENT SINCE 1921

THE RECORD REPORTS

(*Continued from page 12*)

tion with the threat of continued control and continued economic discrimination which will prohibit a reasonable return on the investment." — *Herbert U. Nelson, Executive Vice President, National Association of Real Estate Boards.*

"Continuation of rent controls is holding up the construction of thousands of units of rental housing. . . . In a period when construction costs still are uncertain, investors hesitate to commit their funds to rental projects because the final cost of building may make it impossible for them to rent at the established ceilings except at a substantial loss. The alternative is to invest funds in other ways or to wait until ceilings have been eliminated either by Congress or by administrative action." — *Roy A. Shipley, President, Structural Clay Products Institute.*

"For decades our home production has been building more comfort and convenience into homes, but too often at higher prices. Now the tables must be turned so that better quality can be supplied without advancing costs. Technical advances, improved materials, more efficient practices already at hand make this possible." — *Morgan L. Fitch, President, National Association of Real Estate Boards.*

About the Budget

"Efforts to balance the federal budget could be expedited by returning to the Treasury about $36,000,000 of unexpended funds appropriated last year for subsidies to building product manufacturers. Of the $400,000,000 premium payment fund voted by Congress at the insistence of former Housing Expediter Wilson Wyatt and other Administration leaders, not more than about $35 to $40 million will have been spent by June 30 and the balance would serve no useful purpose if it were spent. . . . Only 10 premium payment plans ever were put into effect and all but four of these already have been terminated without any semblance of protest from industry." — *Douglas Whitlock, Chairman, Building Products Institute.*

CONSTRUCTION REPORT

Contracts awarded for residential construction in the 37 states east of the Rockies totaled $465,810,000 during the first two months of this year as against $191,794,000 during the corresponding period of 1946, F. W. Dodge Corp. figures show.

The total number of dwelling units called for in the January-February contracts was 60,846 compared to 26,103 in the same months last year. Eight per

(*Continued on page 16*)

What Price Friendliness?

This 3-panel door — a variation of the standard Ponderosa Pine 6-panel door — is used in areas calling for a narrower door. Stock design doors of Ponderosa Pine are precision-made for better fitting. These doors sand satin-smooth for receiving paint, stain or varnish — the wood takes nails and screws without splitting. Ponderosa Pine door and window frames are properly seasoned and kiln dried — absolutely square, with joints that are made to remain tight.

Repeatedly, surveys show that people want houses that make them feel "at home"—*friendly* rooms in which architectural design provides a feeling of warmth and comfort.

You can create such interiors—at modest cost—with stock design Ponderosa Pine doors and windows.

Ponderosa Pine paneled doors capture light and shadow in interesting patterns—help you add character to dwellings you plan. Ponderosa Pine windows combine grace and charm with the natural insulating qualities of wood. And all Ponderosa Pine Woodwork is friendly to the owner's pocketbook—because smooth-grained Ponderosa Pine holds paint or other coatings easily—and because Ponderosa Pine is durable.

For reference, you'll want a copy of "Today's Idea House"—Ponderosa Pine's booklet containing photographs of typical interiors made friendly with Ponderosa Pine doors and windows. Mail the coupon for your copy!

For Friendly Living . . .

Ponderosa Pine

WOODWORK

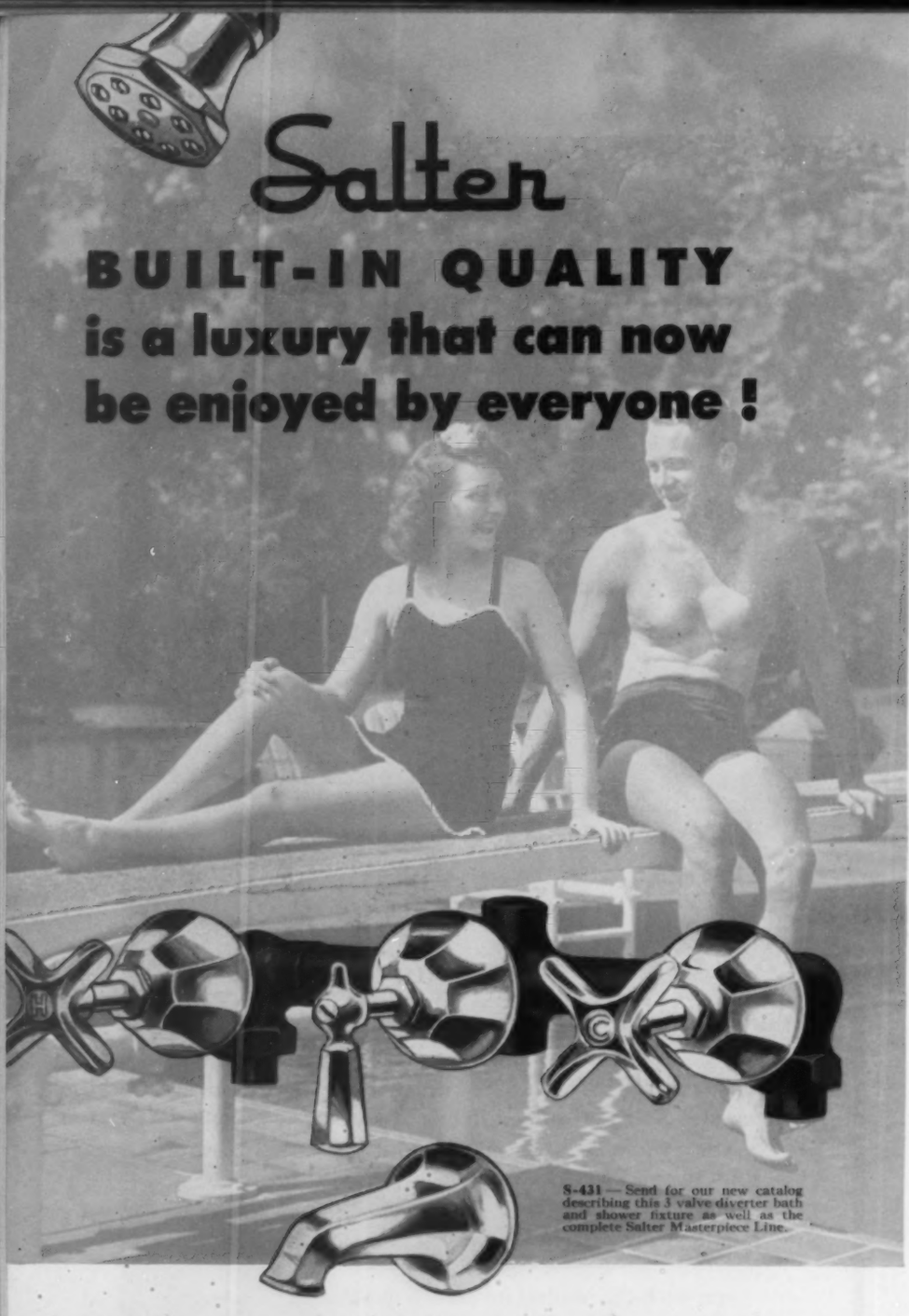
Ponderosa Pine Woodwork
Dept. PAR5, 111 West Washington Street
Chicago 2, Illinois

Please send me a free copy of "Today's Idea House."

Name .....

Address .....

City ..... *Zone* ..... *State* .....


Salter
BUILT-IN QUALITY
is a luxury that can now
be enjoyed by everyone !
S-431 — Send for our new catalog describing this 3 valve diverter bath and shower fixture as well as the complete Salter Masterpiece Line.

The market for quality plumbing fixtures is no longer limited to those few who enjoy the luxury of a private pool . . . now most home owners anticipate the best . . . especially when costs are equal. The 3-valve bath and shower fixture illustrated, with its exclusive long life "EZE" close swivel-disc valve stem construction, heavy brass body, and mirror-like chrome finish, is typical of the luxury features found in all Salter-Glauber fixtures.

The completeness of the Masterpiece Line permits you to specify Salter fixtures on most of your plumbing brass goods specifications. And the production of seven specialized plants also assures sufficient quantities to meet building commitments. Build for the future with Salter luxury fixtures . . . capitalize on their popular acceptance.

H.B. Salter MFG. CO.
MASTERPIECES IN BRASS
10 Ninth Street, Marysville, Ohio
and division THE GLAUBER BRASS MFG. CO., Kinsman, Ohio

THE RECORD REPORTS

(*Continued from page 14*)

cent of these contracts, in dollar volume, were for publicly owned housing projects.

A sharp relative increase in apartment projects was noted, the number of dwelling units therein totaling 16,922 against 5,572 units in such projects during the comparative period of last year. Single-family dwellings erected by operative builders for sale or rent constituted the biggest volume this year with 35,456 dwelling units called for in the first two months compared to 15,119 in this classification in the corresponding period of last year.

Federal controls on nonresidential construction are reflected in the drop from $438,185,000 in January-February, 1946, to $343,570,000 in the same months of this year. Gains in heavy engineering works, however, offset losses in manufacturing and some other classes of nonresidential building, to make the total of all construction contracts $1,013,825,000 for the first two months of 1947 against $744,900,000 in the corresponding period of last year.

HOUSING ESTIMATE DOWN

Faced with a series of substantial union labor wage increase demands, running as high as 69 per cent greater than rates prevailing less than 18 months ago, earlier optimistic expectations of an increased volume of housing construction in the Long Island area are being revised downward sharply to a point bordering on complete cessation, by members of the Long Island Home Builders Institute.

At a recent Institute meeting, builders expressed the conviction that the proposed new wage rates, coupled with current labor conditions, low productivity and a shorter work-week will add up to sales prices that will price homes out of the market. Information from builders indicates that new housing construction currently under way is less than 20 per cent of that a year ago, the Institute points out, and reports of new construction projected for this spring reveal a universal decision on the part of builders to substantially curtail, and in many cases to completely abandon, plans for the start of new construction of veterans' and other housing.

FLORIDA CONSTRUCTION

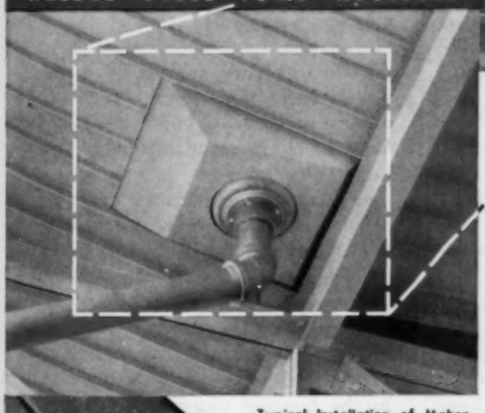
General construction in South Florida for the next five years will approach the billion-dollar mark, say four of Miami's leading economic authorities: the Miami Builders Exchange, F. W. Dodge Corp., the Florida Power & Light Co., and the City of Miami Research Bureau. Fur-

(*Continued on page 156*)

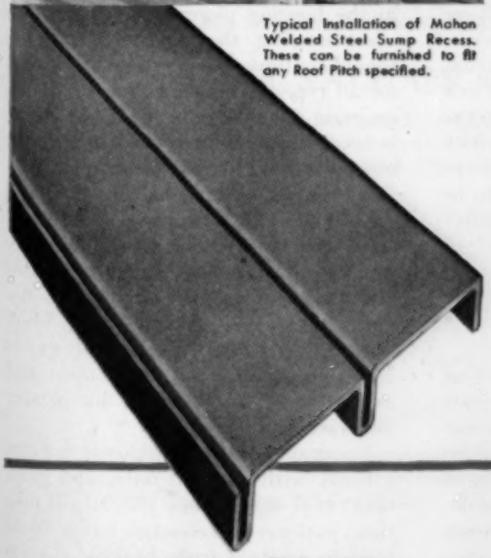
STEEL DECK . . .

Note the angle of the third and fourth purlins in the illustration above. These have been set to create a drainage valley at the sump location.

WELDED STEEL SUMP RECESSES



Typical Installation of Mahon Welded Steel Sump Recess. These can be furnished to fit any Roof Pitch specified.



Standard Mahon Double Rib Steel Deck Plate. Single Rib Plates are also Available for Sidewalls and Partitions which may be insulated to Any Degree Against Heat, Cold or Noise.

for ROOFS, SIDEWALLS and CEILINGS . . . PARTITIONS and CONCRETE FLOOR FORMS

Every day alert designers and builders are finding Steel Deck ideally suitable for more and more uses in building construction . . . roofs, sidewalls, partitions, floors, and many other applications in the industrial, commercial and residential field. Mahon Steel Deck, due to its basic design with narrow, vertical-leg stiffening ribs, lends itself to a broader range of uses in modern construction. See Mahon Insert in Sweet's File for complete information, specifications, and latest construction details, or consult a Mahon representative.

THE R. C. MAHON COMPANY

Home Office and Plant, Detroit 11, Mich. • Western Sales Division, Chicago 4, Illinois

Representatives in all Principal Cities

Manufacturers of Steel Deck for Roofs, Sidewalls, Ceilings, Floors, Partitions and Doors. Also Roof Sumps and Recesses, Rolling Steel Doors, Grilles, and Underwriters' Labeled Rolling Steel Doors and Fire Shutters.

MAHON

A NEW CLIMATE FOR HOUSING

EDITOR:

The article in your February number on Rental Housing calls for a favorable "climate for housing" and presents seven "Suggestions for Stimulating Rental Housing."

It may be advisable to adopt some of these measures, but in my opinion, no one of them nor all of them together can produce a "climate" in which we can develop a rational answer to our needs.

1. *Remove all rental ceilings from newly constructed rental housing.* Since existing controls have failed to actuate much rental housing, this would seem to be a logical step. At least some high rental units may result, of which a limited number are needed. But this will do nothing to supply the need for medium and low rental housing, which is the big market. We know from past experience that overbuilding for high incomes, trusting to a subsequent bust to bring prices down, doesn't work. Where do the G.I.'s and other young married people come into this process? They need homes now, not at the end of an economic cycle of boom and bust. We can't rely on the "trickle down" process. How many high rental units can we build before the market is glutted, with the consequent cessation of building? A rental of $100 a month requires an income of approximately $5000. Suppose that as many as 10 per cent of the families in this country enjoyed such an income, and that as much as 60 per cent of the needed annual supply of 1,200,000 dwellings were in rental units. This would mean on a prorated basis 72,000 high rental units for the entire nation. But since high income families are generally adequately housed, the number needed is doubtless considerably less — say 50,000. Where does the veteran come out in this deal? Are his frequent complaints that the promises made him are not being kept at all surprising?

2. *Remove all government cost restrictions on new rental units.* Perhaps this will produce some housing, but, for the reasons mentioned above, it will necessarily be a small quantity.

3. *Adjust rents on existing dwellings.* This may be necessary in some instances where hardships are worked on landlords by present controls, but only where such hardship is proven.

Rental ceilings on existing buildings are necessary and fair since their cost is a thing of the past. Existing buildings far outnumber any that could possibly be built now, and ceilings on their rentals are our main protection against a runaway inflation in rents.

4. *Remove or modify the federal corporate income tax on rental housing corporations.* In their excellent study, Messrs. Paul and Colean show clearly the adverse effect that this tax can have on the security of a real estate corporation. It would appear that at least a modification of the tax is in order. It is difficult to estimate quantitatively the result of such modification.

5. *Remove all restrictions on the building of single-family homes.* This will not help to produce the $5000 house. There is already buyer resistance to paying $10,000 and up for a home that should cost half those amounts. Those who in desperation buy them to have a roof over their heads are the victims who will take a beating when prices drop.

6. *Remove restrictions on non-residential buildings.* If it is a fact that materials on hand are sufficient for all types of construction, this is obviously the proper thing to do. It is not as yet entirely evident that the needs of residential construction are being adequately supplied, and home building is an emergency need that should come first. It is not clear to me how this proposal would help housing, inasmuch as it would place other claims on a parity with housing demand in competition for the more scarce materials.

7. *Enable insurance companies to undertake equity ownership in states not now permitting it.* Few will question the wisdom of this proposal. There is some question how much immediate good it will do. The insurance companies are real investors, not shoe-string operators. They are not tempted to build at present prices, for they are faced with what is tantamount to a capital loss at such future time as prices recede and others will be able to base their rentals on lower costs than those which prevail today.

At a time when prices are so high that no real investor will risk his money in a rental project, it is futile to revert to the mechanisms of real estate anarchy which never have worked and can't do so now. A new climate for housing is not to be achieved suddenly or by purely negative methods. It requires a new approach to the entire problem of housing and the slaughter of many sacred cows. Here are some of the things I think we must do to create that climate:

(a) Recognize the fact that housing is a primary need, requiring a program that is complete, continuous and coordinated. We must rid ourselves of the notion that housing can possibly be an automatic by-product of private profit. The process of producing houses means wages for workers and profits for contractors, and it should. But it is a far cry from this to the assumption that wages and profits can be the mainspring of housing production. One of the primary troubles today is the fact that government aid to housing has been based largely on this fallacy.

(b) Discourage the use of housing as a mere trading commodity and encourage genuine investment by those who seek a moderate but reasonably assured profit. Abolish shoe-string equities and the consequently unsound financing. Whether a man invests for profit or for home ownership, he should have a sizeable equity, in the interest of decent construction, proper maintenance and as a safeguard against default. In its efforts to produce more housing, the Federal Housing Administration has relied mainly on the thinning down of the equity requirements, supplemented during the emergency by waivers of physical standards. Before long this may be calamitous to the home owners who have been saddled with an excessive debt in exchange for a tenuous hold on a structure of questionable quality.

(c) Adopt a more realistic approach to the problem of home ownership. Both the government and the lending institutions have been remiss in their obligation to tell prospective home owners just what is involved in their purchase of a home with a heavy debt. The government has never adequately protected the home owner against excessive interest, loss of his home through temporary inability to meet a single payment of charges and against deficiency judgments.

(d) Develop a housing industry, operating on a large scale, adequately financed and doing a complete job of housing production. This could reduce measurably the first cost of the product and consequently greatly widen the market of potential buyers or renters.

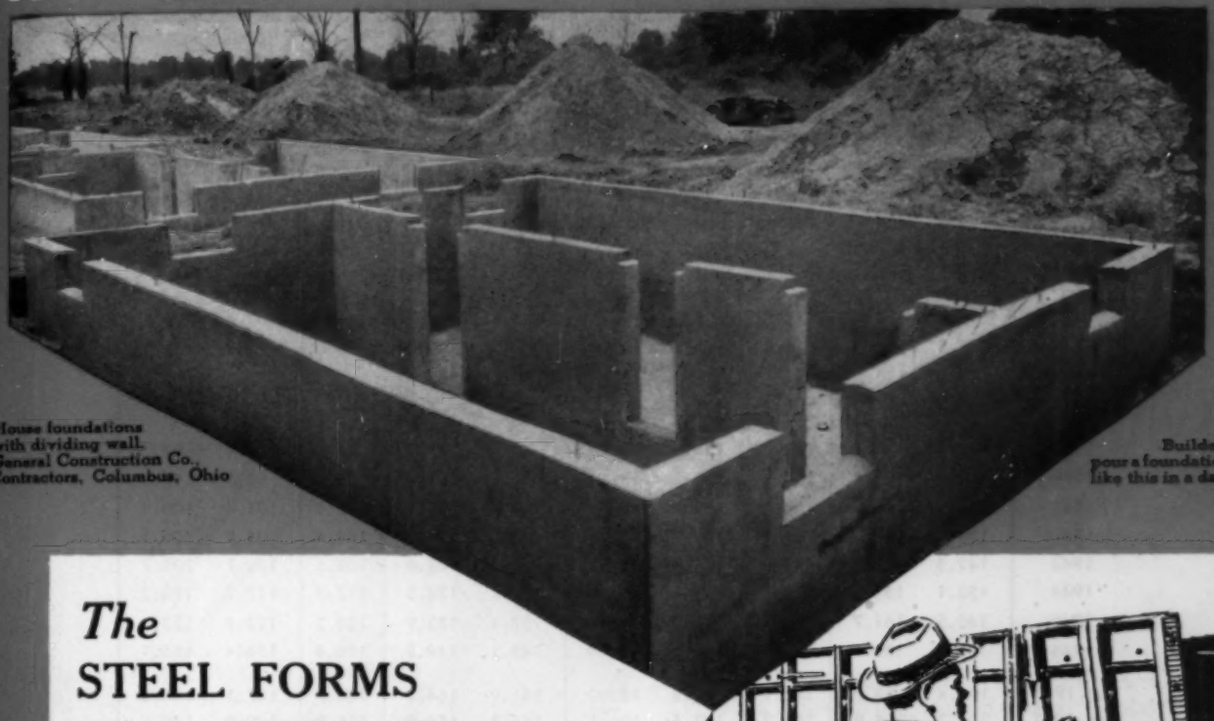
(e) Clarify the role of public agencies in the housing picture. In addition to what housing they may assist, they should continuously investigate the need for all types of housing and develop a program for the production of all that is needed, whether privately or publicly initiated.

(f) Since housing is an essential need, we should not hesitate to resort to subsidy when and where it is required to produce the goods. In some cases this may mean subsidies to private developers, with a *quid pro quo* of lower sales prices or rentals. But if we do resort to subsidy, let it be open and avowed and not obscured by phoney financial legerdemain.

Every one of these proposals requires a break with past attitudes and practices. It is not an easy job. It will take time, patience and courage, but it would tend to create a truly healthy climate for housing.

— EUGENE H. KLABER, F.A.I.A.
Housing and Town Planning Consultant

ATLAS LABOR-SAVING *SPEED* FORMS



House foundations with dividing wall. General Construction Co., Contractors, Columbus, Ohio

Builders pour a foundation like this in a day.

The STEEL FORMS That *SPEED* UP CONCRETE CONSTRUCTION

Builders and engineers make savings of 25 to 50%, and do a better job in less time with Atlas Speed Forms—Much better and faster than with plywood.

Easily and speedily erected, stripped and moved. No studs or joists needed. Light-weight—anyone can handle them. Ruggedly built of steel—good for indefinite use without repair. *Form Cost per sq. ft. per use less than one cent.*

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Complete layout and erection supervisory service to new users. Let us show you how much time and money you can save with Atlas Speed Forms.

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Atlas SPEED forms line up straight and true. • Easy to set up, move and strip • Adjustable to suit any condition • Interchangeable—can be used for walls or floors —Smooth Finish—no knot or grain marks —Nothing to remove.

Atlas Steel Forms for every Purpose

CONSTRUCTION COST INDEXES — Labor and Materials

United States average 1926—1929 = 100

Compiled by Clyde Shute, manager, Statistical and Research Division, F. W. Dodge Corporation, from data collected by E. H. Boeckh & Associates, Inc.

NEW YORK

Period	Residential		Apts., Hotels, Office Bldgs.	Commercial and Factory Buildings	
	Brick	Frame	Brick and Concr.	Brick and Concr.	Brick and Steel
1920	136.1	136.9	123.3	123.6	122.6
1925	121.5	122.8	111.4	113.3	110.3
1930	127.0	126.7	124.1	128.0	123.6
1935	93.8	91.3	104.7	108.5	105.5
1939	123.5	122.4	130.7	133.4	130.1
1940	126.3	125.1	132.2	135.1	131.4
1941	134.5	135.1	135.1	137.2	134.5
1942	139.1	140.7	137.9	139.3	137.1
1943	142.5	144.5	140.2	141.7	139.0
1944	153.1	154.3	149.6	152.6	149.6
1945	160.5	161.7	156.3	158.0	155.4
1946	181.8	182.4	177.2	179.0	174.8
Jan. 1947	195.4	198.0	183.9	186.2	183.0
Feb. 1947	204.7	208.9	194.7	193.5	191.1
	% increase over 1939				
Feb. 1947	**65.8**	**70.6**	**48.9**	**45.0**	**46.8**

ATLANTA

Period	Residential		Apts., Hotels, Office Bldgs.	Commercial and Factory Buildings	
	Brick	Frame	Brick and Concr.	Brick and Concr.	Brick and Steel
1920	122.8	122.9	108.6	109.8	105.7
1925	86.4	85.0	88.6	92.5	83.4
1930	82.1	80.9	84.5	86.1	83.6
1935	72.3	67.9	84.0	87.1	85.1
1939	86.3	83.1	95.1	97.4	94.7
1940	91.0	89.0	96.9	98.5	97.5
1941	97.5	96.1	99.9	101.4	100.8
1942	102.8	102.5	104.4	104.9	105.1
1943	109.2	109.8	108.5	108.1	108.7
1944	123.2	124.5	117.3	117.2	118.2
1945	132.1	133.9	123.2	122.8	123.3
1946	148.1	149.2	136.8	136.4	135.1
Jan. 1947	161.9	164.2	145.7	147.1	145.8
Feb. 1947	165.8	166.8	148.8	149.9	148.8
	% increase over 1939				
Feb. 1947	**92.2**	**100.7**	**56.5**	**53.9**	**57.1**

ST. LOUIS

Period	Residential		Apts., Hotels, Office Bldgs.	Commercial and Factory Buildings	
	Brick	Frame	Brick and Concr.	Brick and Concr.	Brick and Steel
1920	118.1	121.1	112.1	110.7	113.1
1925	118.6	118.4	116.3	118.1	114.4
1930	108.9	108.3	112.4	115.3	111.3
1935	95.1	90.1	104.1	108.3	105.4
1939	110.2	107.0	118.7	119.8	119.0
1940	112.6	110.1	119.3	120.3	119.4
1941	118.8	118.0	121.2	121.7	122.2
1942	124.5	123.3	126.9	128.6	126.9
1943	128.2	126.4	131.2	133.3	130.3
1944	138.4	138.4	135.7	136.7	136.6
1945	152.8	152.3	146.2	148.5	145.6
1946	167.1	167.4	159.1	161.1	158.1
Jan. 1947	183.4	183.8	168.5	169.3	169.5
Feb. 1947	187.6	187.0	173.9	175.2	172.8
	% increase over 1939				
Feb. 1947	**70.1**	**74.8**	**46.5**	**46.2**	**45.1**

SAN FRANCISCO

Period	Residential		Apts., Hotels, Office Bldgs.	Commercial and Factory Buildings	
	Brick	Frame	Brick and Concr.	Brick and Concr.	Brick and Steel
1920	108.8	107.5	115.2	115.1	122.1
1925	91.0	86.5	99.5	102.1	98.0
1930	90.8	86.8	100.4	104.9	100.4
1935	89.5	84.5	96.4	103.7	99.7
1939	105.6	99.3	117.4	121.9	116.5
1940	106.4	101.2	116.3	120.1	115.5
1941	116.3	112.9	120.5	123.4	124.3
1942	123.6	120.1	127.5	129.3	130.8
1943	131.3	127.7	133.2	136.6	136.3
1944	139.4	137.1	139.4	142.0	142.4
1945	146.2	144.3	144.5	146.8	147.9
1946	159.7	157.5	157.9	159.3	160.0
Jan. 1947	173.2	170.8	167.3	169.4	172.5
Feb. 1947	177.0	173.9	172.4	174.6	176.1
	% increase over 1939				
Feb. 1947	**67.6**	**75.2**	**46.8**	**43.3**	**51.1**

The index numbers shown are for combined material and labor costs. The indexes for each separate type of construction relate to the United States average for 1926–29 for that particular type — considered 100.

Cost comparisons, as percentage differences for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

index for city A = 110
index for city B = 95

(both indexes must be for the same type of construction).

Then: costs in A are approximately 16 per cent higher than in B.

$$\frac{110-95}{95} = 0.158$$

Conversely: costs in B are approximately 14 per cent lower than in A.

$$\frac{110-95}{110} = 0.136$$

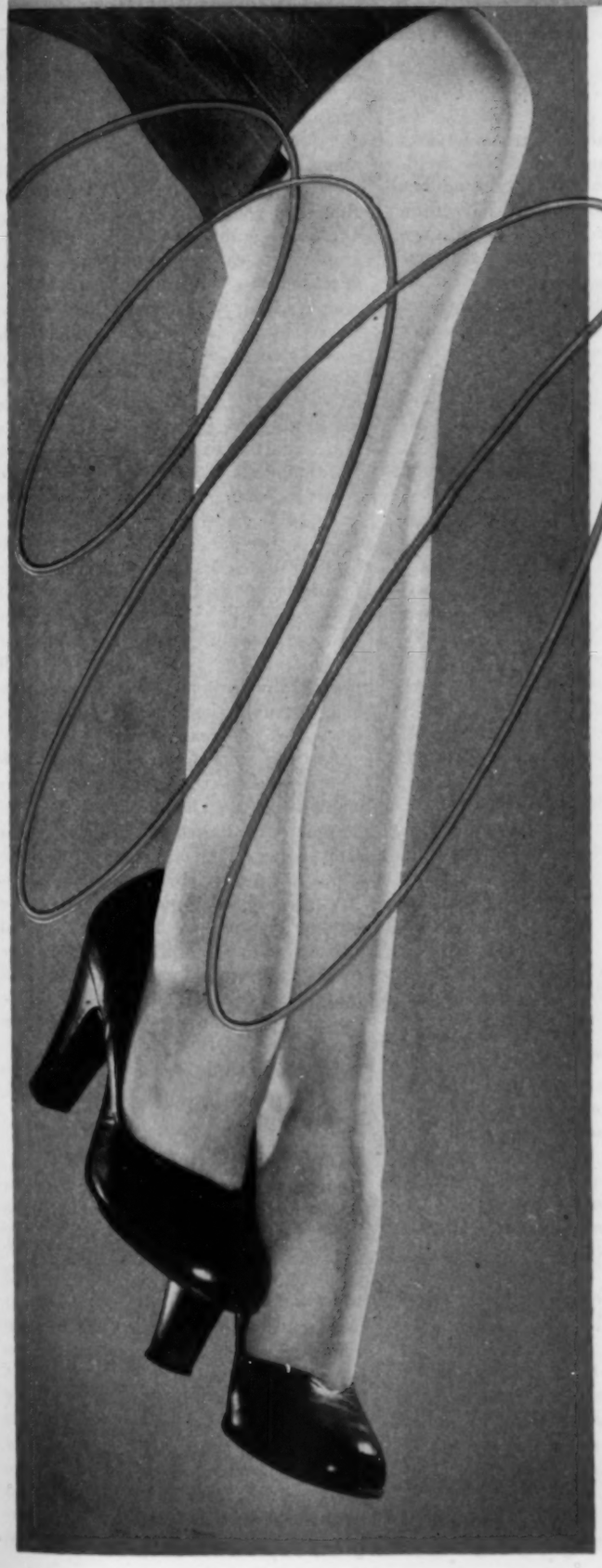
Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926–29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published legal prices, thus, indexes reflect minimum costs and not necessarily actual costs.

These index numbers will appear whenever changes are significant.

UNITED STATES RUBBER COMPANY

SERVING THROUGH SCIENCE



a modern new wire

This new building wire, in the branch circuit sizes, is finished in nylon and is called "Neolay."

It's the smallest diameter, lightest weight building wire on the market. The nylon-smooth finish and small diameter facilitate installation.

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REQUIRED READING

Insertion of insulated wall panels in a prefab. From "The Prefabricated House"

PREFABS FOR EVERYONE

The Prefabricated House: A Practical Guide for the Prospective Buyer. By Raymond K. Graff, Rudolph A. Matern and Henry Lionel Williams. Garden City, N. Y., Doubleday & Co., Inc., 1947. 6½ by 9¾ in. Illus. $2.75.

A good bit of the confusion still existing in the average lay mind about the prefabricated house will be cleared up by this book. Written by a pair of architects and an old-hand author, it is as concise and clear as the complicated subject will permit.

"The first thing to remember," the authors state right at the beginning, "is that in buying any prefabricated house you do not get a complete dwelling ready for occupation, and that the package may actually represent less than 50 per cent of the cost of the finished job." Well, what *do* you get in your "package"? That depends on the manufacturer: maybe you'll get painting and plastering, maybe you won't; the carpenter work may be almost complete, or a great deal of it may have to be done on the site. All you can do is investigate carefully what each manufacturer offers, and choose the house that best suits your needs.

To the average layman that is going to be a pretty discouraging discovery. The discouragement, however, will be quickly outweighed by the thoroughness of the ensuing discussion. The prospective purchaser of a prefab will be spared many a headache if he reads this book. He will learn what to look for, what to expect, what his maintenance problems may be, how to select and adapt the site, how exactly to go about buying a prefab, and finally who and where the manufacturers are. He will also get a pretty good idea of what his house may look like both outside and in. He will even get a general idea of its construction. In short, he will not be buying a pig in a poke, but, if he reads these pages carefully, a house which should more or less come up to his expectations.

ARCHITECTURE OF OLD

An Album of Maya Architecture. By Tatiana Proskouriakoff. Washington 5, D. C. (1530 P St., N.W.), Carnegie Institute of Washington, 1946. 15¼ by 12 in. 150 pp. 36 plates. $10.00.

Through the years a great many books and articles dealing with Maya architecture have appeared, but none has been more interesting pictorially than this. Miss Proskouriakoff's full-page drawings have captured the spirit not only of the buildings themselves but of the civilization which produced them.

This volume is well named an album despite the page or so of text accompanying each plate. The text is wholly unobtrusive, held to a minimum and used only to point up the illustrations. There is, however, a good introduction presenting the more salient facts about Maya civilization. Enough information is given to make it possible for the reader who is unfamiliar with the Maya to understand and appreciate the perspectives.

The 36 plates include such well-known buildings as the Acropolis at Piedras Negras, Guatemala, and the various excavations at Chichen Itza, Yucatan, as well as less familiar structures such as the Maya sweat bath at Piedras Negras, the ball court and the reviewing stand at Copan, Honduras.

This is a beautiful book. It has been prepared with the greatest care, and shows it in the excellent typography and printing The plates are well arranged, and there is a frontispiece map locating the various sites.

THE FUTURE IS OURS

Land of Plenty: A Summary of Possibilities. By Walter Dorwin Teague. New York 17 (383 Madison Ave.), Harcourt, Brace and Co., 1947. 5¼ by 8 in. 320 pp. $3.00.

This book, says its author, "is an effort to convey some idea of what we can make of life in this country if we have sense enough to use the scientific, technological, and productive resources now at our command."

Mr. Teague is fully aware of all the problems that must be solved before the goal he is reaching for can be achieved. He delves into the economic depressions that have hit us. He takes a frank look at the government. He explores the increasingly difficult labor situation. Discouraging as the record is, his faith in the future is unbounded as he summarizes the tremendous strides taken by science and industry since the turn of the century.

The titles of the several chapters on housing are indicative of his attitude: "We Can Provide Millions of Houses," "And Furnish Them Decently," "In Gracious Communities." Production and distribution of housing, Mr. Teague says, are out of line with production and distribution of less essential items such as the automobile. Houses cost too much to build and are too hard to buy—"contrast the elaborate and fearsome mortgage rigmarole, itself a survival of a handicraft age, with the simple installment-plan purchase of an automobile." For the families who can afford them, the traditionally built houses tailored to specific needs and tastes are fine. But something must be done for the larger number of families whose incomes just cannot permit such handicraft building. "What our vast, shifting, wage-earning population needs if it is to be well housed is a bright, shining, handsome, completely equipped, up-to-date machine for living, costing between $1000 and $2500; a house a man can alter or enlarge by buying spare parts; a sturdy but light-weight house he can disassemble and take with him, if he wants to, when he shifts his job, and turn in on a new model in ten or a dozen years when it becomes obsolete; a house he can buy on the installment plan and pay for in two or three years without a lot of red tape." In other words, prefabrication and mass production keyed to their peak of efficiency, Mr. Teague feels, will provide the answer to the housing problem. Technologically and economically, he says, we are ready for it.

As there would have to be in a book of this kind, there is a good bit of discussion of the labor situation. Mr. Teague is an industrial designer, not a factory owner, but his arguments on the whole are sound. He stresses the necessity for everyone's pulling together. He sees no reason why labor and capital cannot split their differences and come to an understanding which will be of mutual benefit. He offers as a possible solution, the not very widely known Keuls-Kenyon Plan, which puts forward a uniform, guaranteed minimum wage for everyone and a plan for labor's profit-sharing.

HOW MUCH HOUSING?

Estimating Housing Needs. By Alexander Block. London S.W. 1, Eng. (13 Queen Anne's Gate), The Architectural Press, 1946. 5½ by 8½ in. xiv. + 128 pp. illus. 10s 6d.

The question of how much housing and what kind a country may need is never an easy one to answer. Even when a housing census has been taken and the results have been compiled, the exact needs are not known. A super-soothsayer must be called in to predict probable increases and changes in population in the years just ahead. It is to help make this prognostication more scientific and less mediumistic that this study has been

(*Continued on page 30*)

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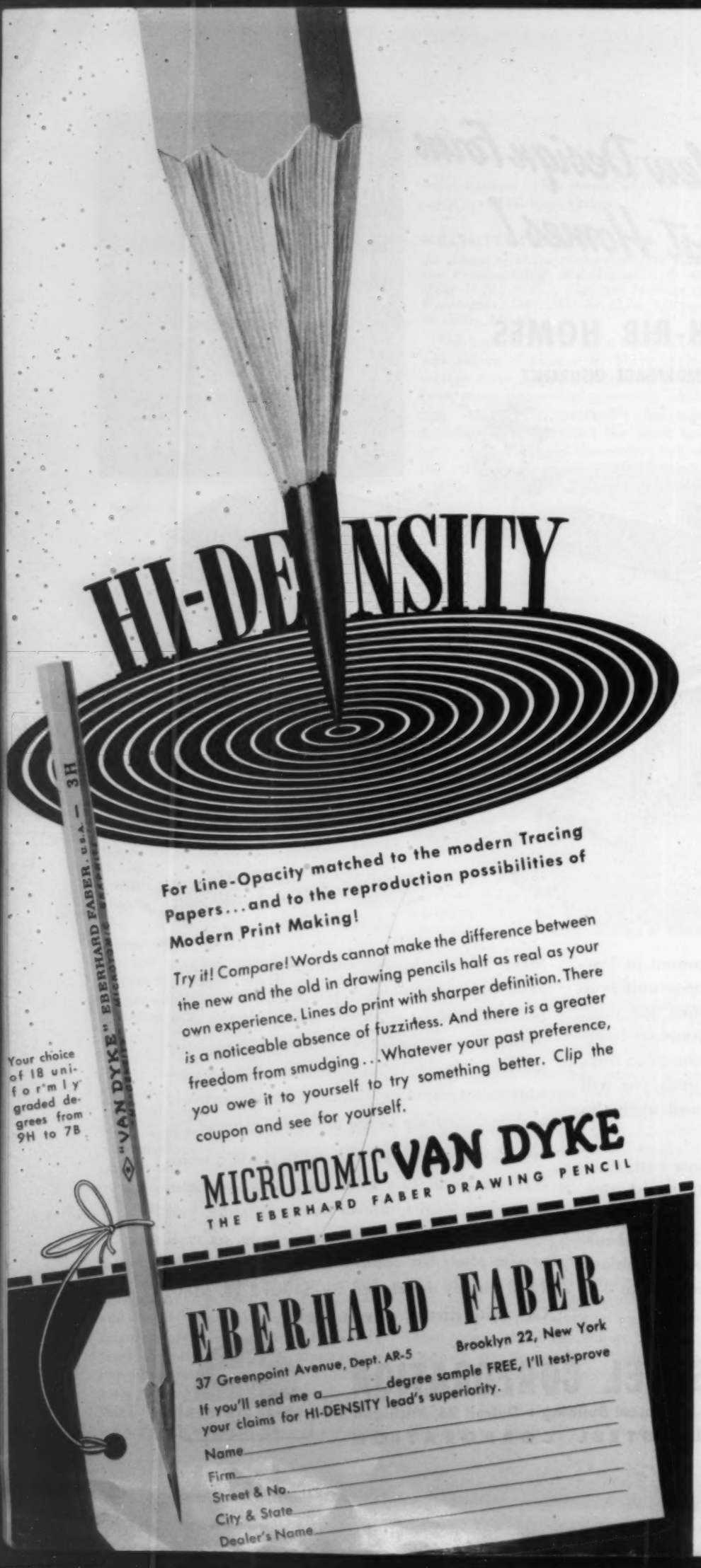
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REQUIRED READING

(*Continued from page 28*)

prepared. Its whole approach to the problem, therefore, is scientific.

Mr. Block does not offer a new type of census as the solution, but suggests more accurate methods of interpreting the information already available. He puts considerable stress on the ways and means of ascertaining the approximate number of one-person "families" to be housed. He proposes certain changes in terminology which would help to clarify census results. And above all, he shows why previous housing estimates have gone astray. This book should be of considerable help to town planners as well as to housing authorities, particularly when it is joined, as it is soon to be, by further studies by the same author.

WHAT ARCHITECTS DO

Notes on Architectural Practice. By C. H. Cowgill. Blacksburg, Va., The College Book Store, 1947. 8½ by 11 in. 186 pp. Mult. $3.00 ($2.70 ea. in quantities of 20).

Addressed to architectural students, these notes on the workings of the profession are characterized primarily by frankness. From the very first page on how to snare a job the problems are discussed with complete candor. The author's statements are not presented as gospel, but are intended to give the overall picture and to stimulate the reader to thoughts of his own.

The notes originated as lectures given at Virginia Polytechnic Institute; they were used as a textbook during the war years, apparently with considerable success. Prof. Cowgill, head of the Department of Architecture at V.P.I., has assembled his material in most logical fashion, working straight through from the securing of a commission, client relationships and preliminary sketches to such intricate matters as contracts and the financing of projects. The thoroughness of his coverage is indicated by the chapter on preliminary sketches and models: included are suggestions as to the media used for such sketches and a good bit of detail on the making of models. In the chapter on working drawings there is again a discussion of the techniques most commonly used, and an explanation of the choice of scale.

Unusual chapters in a book of this kind are those dealing with the business end of the profession — Architects' Capital, Business Fundamentals, The Profit and Loss System, and so on. A whole section is devoted to these matters, and another to the legal and professional aspects. Examples and diagrams are used liberally throughout the text for maximum clarity. Reading lists, problems and review questions are given for each chapter.

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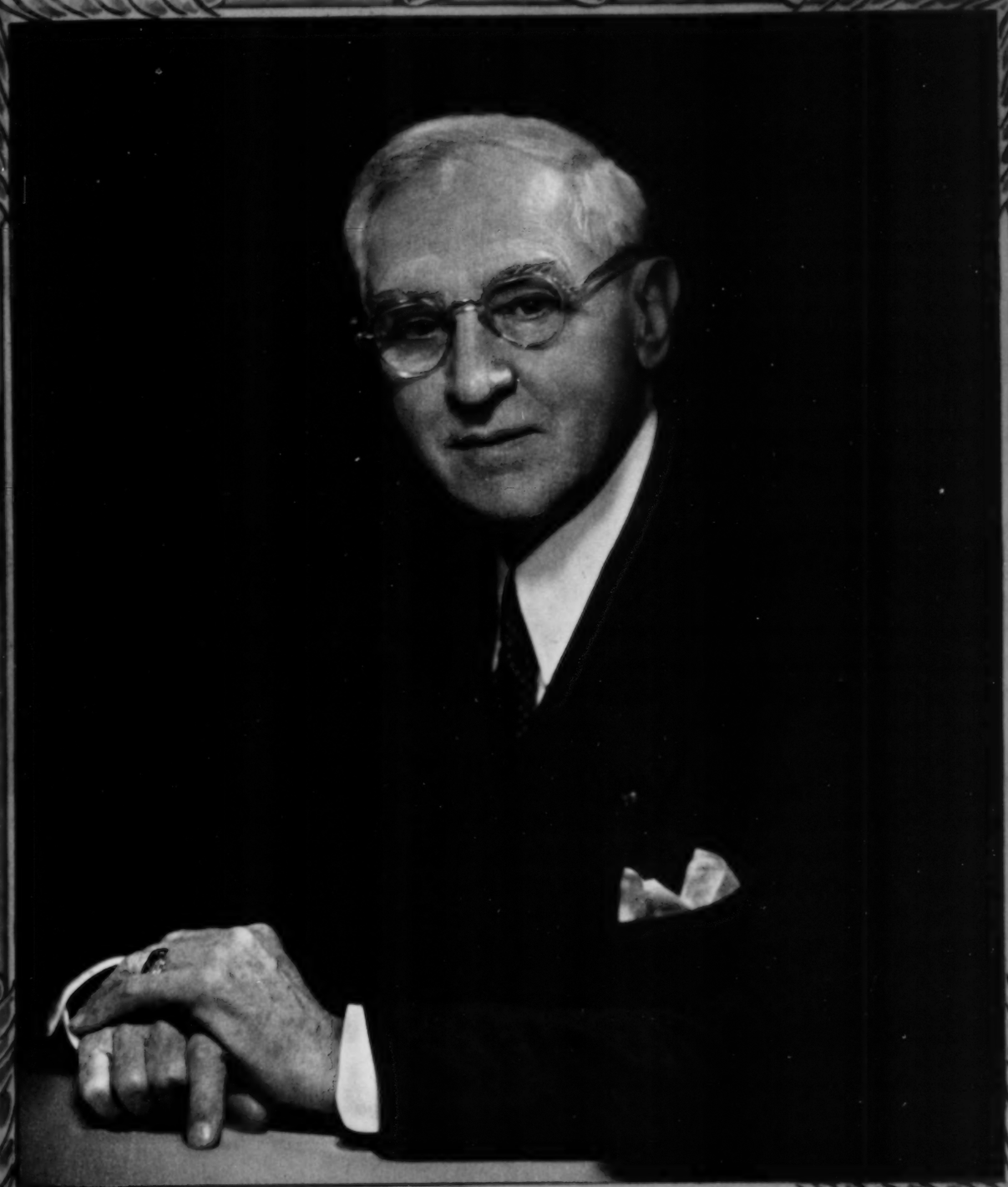

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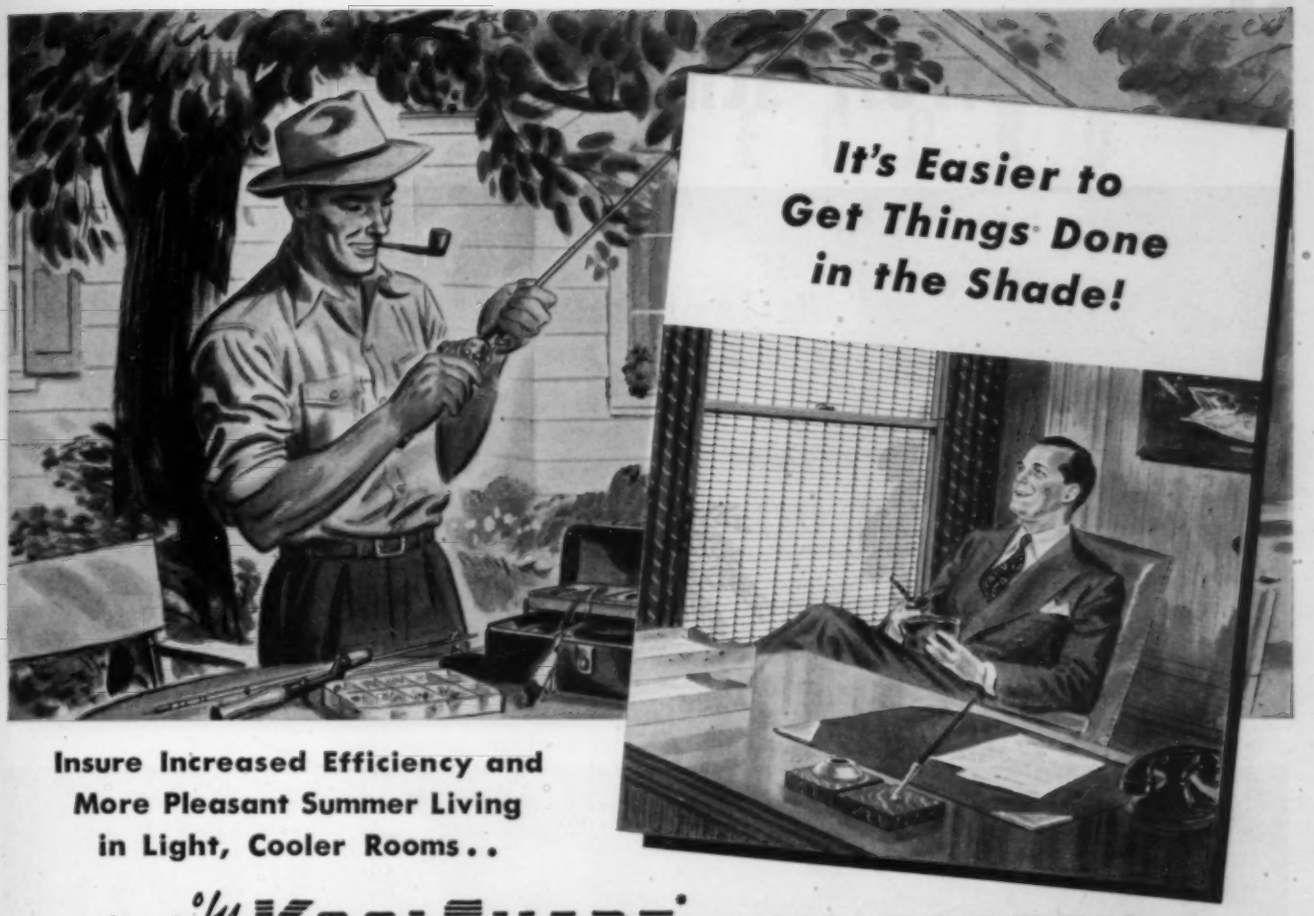

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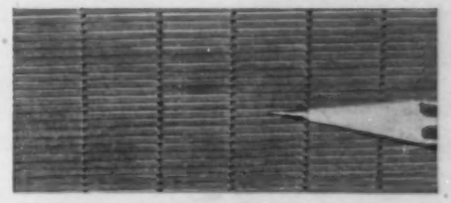
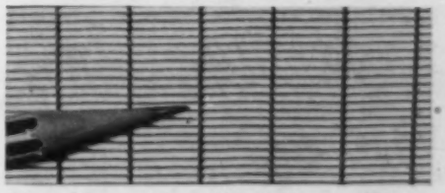


Outdoors the sun "sees" the flat of the slats like this—sun heat rays just can't get in.



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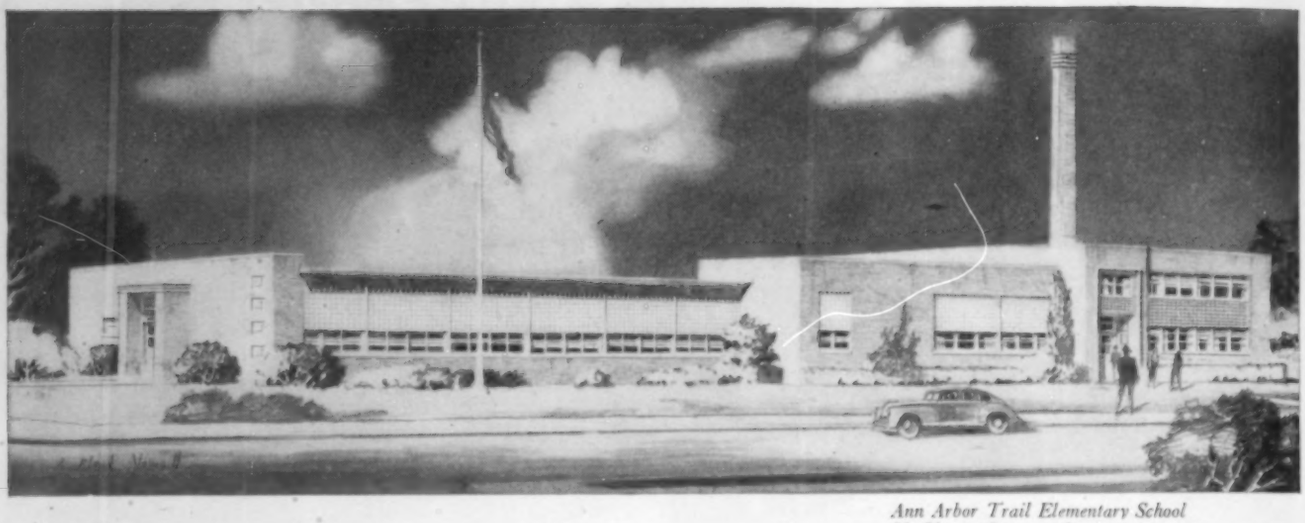

Ann Arbor Trail Elementary School
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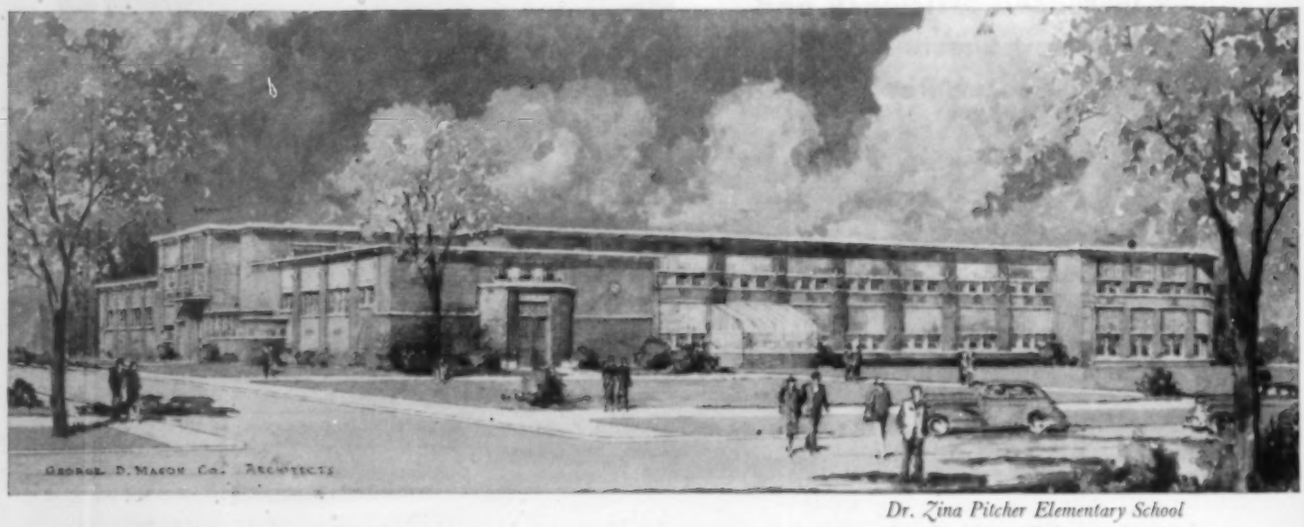
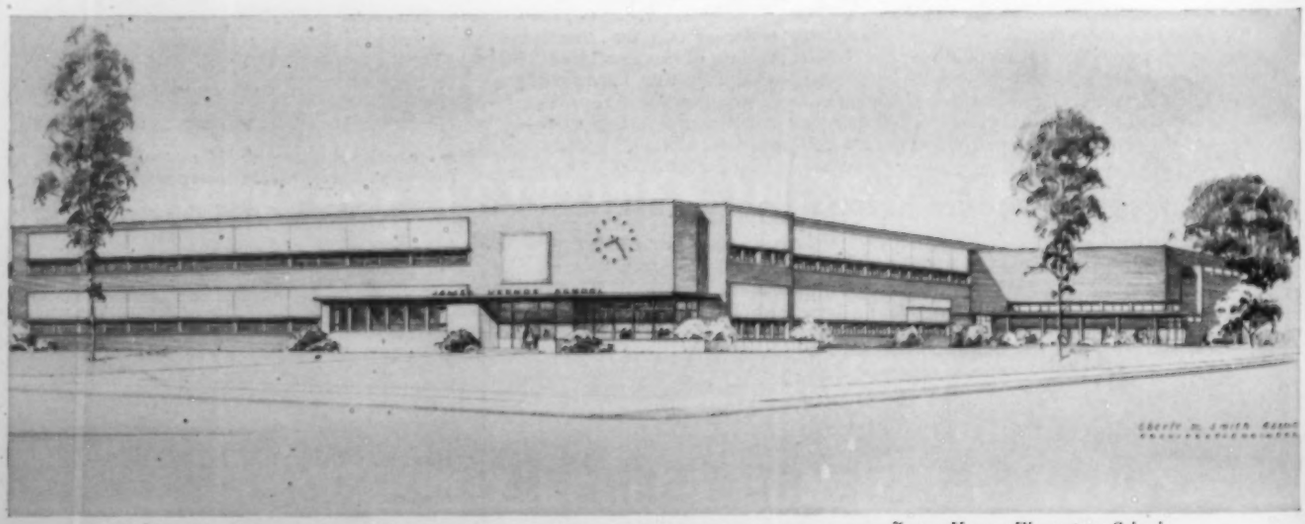
Joseph Peter Jogerst, Architects and Engineers



Dr. Zina Pitcher Elementary School
Geo. D. Mason & Co., Architects



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ARCHITECTURAL

RECORD

COORDINATING THE COORDINATORS

ONE of the functions of the architect, (assumed to be a function of any architect) is that of "coordinator" of the building project. How valid, how realistic is his assumption? Is "the general direction and supervision" of the project a function which is and should be delegated to and assumed by the architect in order to obtain the best possible result for all parties concerned? And if so, what is or should be done to insure professional competence in performing this function? What ability, training and experience are necessary for this role? Where and how does he get them — or did you?

In one sense the (or an) architect is the coordinator — for in his designs, his drawings and specifications, his services, are incorporated the desires and needs of the owner, the basis for the computation and judgment of the financiers, the complex systems and calculations of the engineers, the selection of the manufacturers' products, the precise instructions to contractors and trades, and the law-imposed requirements of society at large. But this is coordination in terms of design rather than execution.

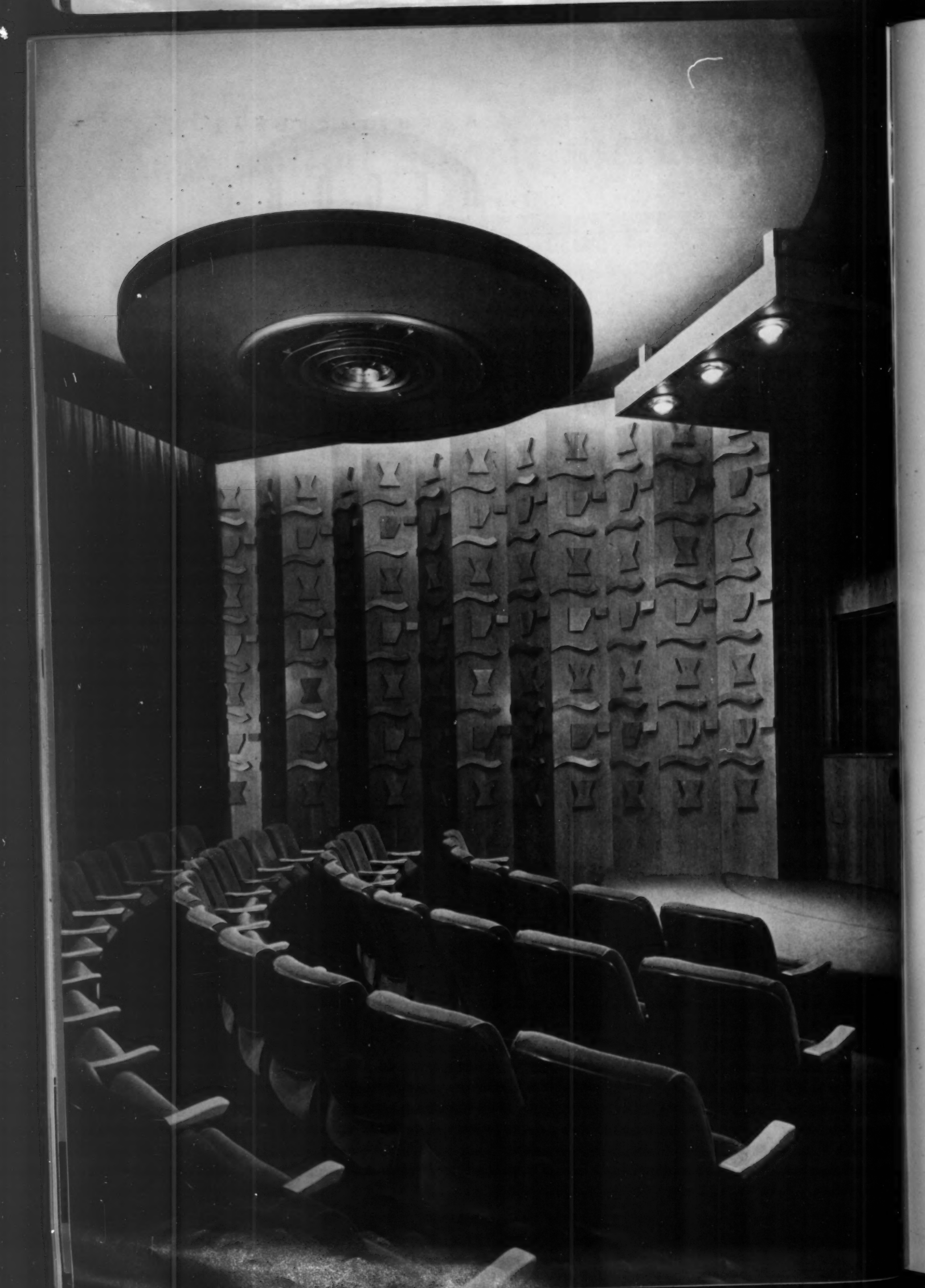
In a more usual and widely accepted sense, "coordination" of a building project connotes responsibility in administration and executive control. This is the client's natural understanding of the term, and the one on which he frequently bases his evaluation of the architect. Coordination in this sense implies dealing with people rather than with things and ideas. It involves both persuasion and forcefulness, both tact and command, sound judgment based on technical knowledge, and the power of convincing expression. It involves efficiency in organization, thoroughness in detail and timing, as well as personal loyalties and integrity and sincerity.

While it is true that ability as coordinator in this sense seems to stem from inherent personal character and early-acquired characteristics, "doing what comes naturally," it is also true that such ability can be cultivated. It is heartening to learn that some of the architectural schools are paying more attention to this most important phase of training for full, well-rounded architectural competence. Others, however, omit it with the feeling that time is too short for anything but Design and its handmaiden Construction. They know from long experience that the major interest of the majority of students *is* Design, and that Design is the essence of Architecture. But to make creative design effective, the architect must demonstrate competence as coordinator in *both* connotations of the word. The sooner this is realized by the embryo architect, the better, and the early years of architectural school are none too soon. Too rarely, perhaps, executive and administrative ability is coupled with creative design ability in the same person.

It would seem to be the function of the schools to train both talents, for architecture as practiced today demands both, either as teams or firms, or more rarely in the one-man office. The effective practice of architecture demands the integration, in one responsible organization, of the three prime functions — Design, Engineering and Administration. Such coordination in the architectural office itself is essential if the architect is to be in truth "coordinator" of the work.

Kenneth K. Stowell

EDITOR



DRAMATIC PRESENTATION OF SOUND

Display Rooms for RCA Victor Division, Radio Corporation of America, Camden, N. J.

Carroll, Grisdale and Van Alen, Architects

In designing a showroom for an internationally famous producer of sound equipment, the architects have had a triple assignment to meet. Technically, their installation must be exemplary. Good merchandising must be achieved for the manufacturer and sound methods must be demonstrated in turn to visiting distributors of his products. And, finally, to make an adequate impression, in a rapidly developing field which daily witnesses fresh miracles, the display must be dramatic.

In drama, in particular, the architects have succeeded admirably. In a room so small as the theater (frontispiece), which is less than 24 feet square, there is rarely achieved so vigorous a unity of impression. There is not one bit of that timidity in handling sound control, in a small area, which has characterized the work of those who are unsure. By its vigor the RCA company proclaims its confidence in its own technical expedients. The room may serve as an example for those needing small theaters in countless other contexts.

(It may well be added, parenthetically, that the photographer has achieved a faithful equivalent of this room, reproducing the excitement which the design generates, but that there is also in the room that friendliness of texture and that repose which are necessary for long-term comfort and acceptance.)

The theater in its corner (see plan, overleaf) is the dramatic climax of a careful plan sequence. The entrance serves not only the display rooms but the multistory building in which these are found. Since a good many visitors are expected in the building, an information desk is prominently and conveniently located in this lobby.

The reception lounge, off to the right, is properly arranged out of the way of traffic but open to the entrance making it easy for new arrivals to see and be seen.

The large main room is occupied by equipment produced by the manufacturer. It is under control of an executive who occupies an alcove directly off the entrance to it.

Diagonally across from the executive's alcove is an exemplary installation of a central sound control system, connected to the theater and to a small "announce" room as well as to the room of the program director.

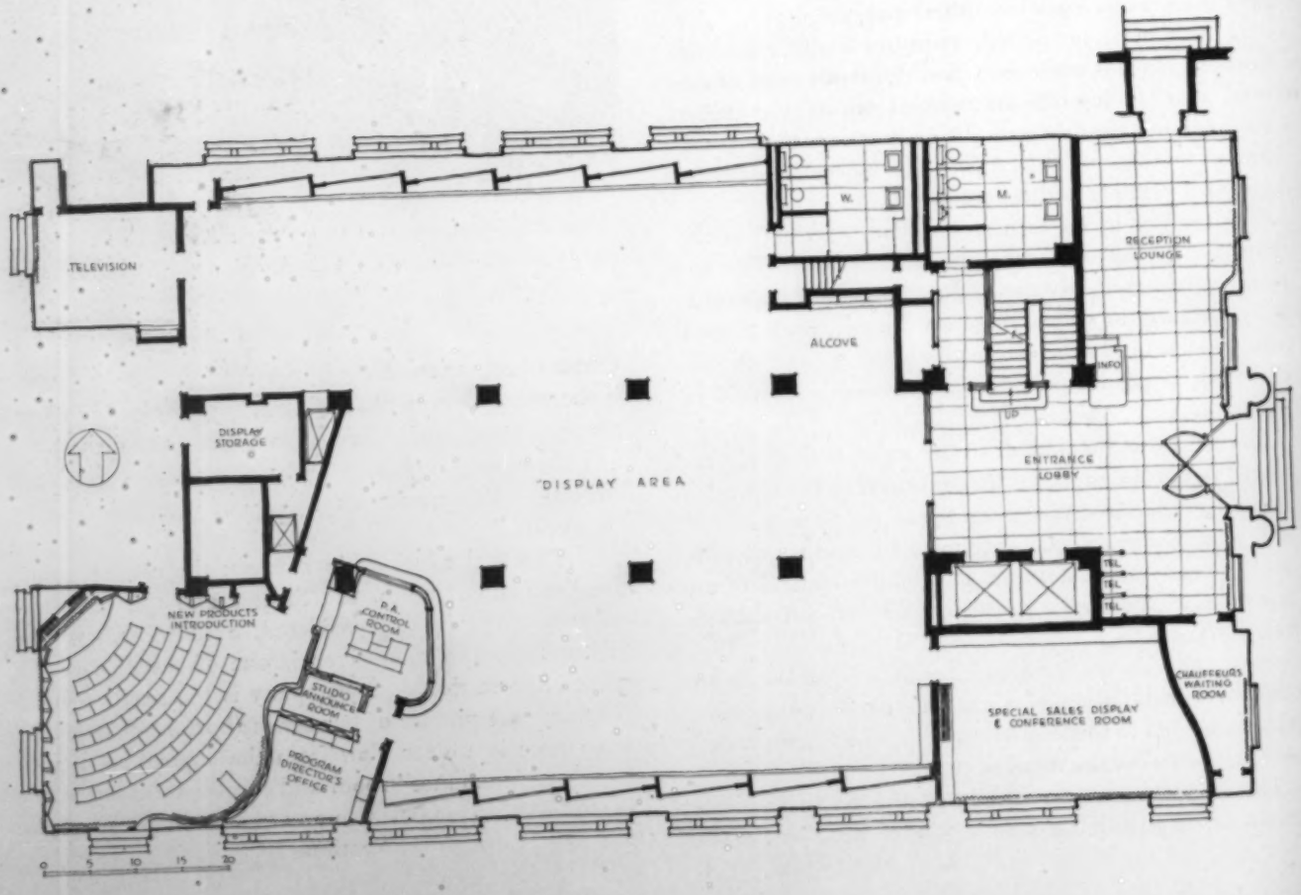
This installation is glass-enclosed and, by special illumination, is high-lighted so as to become the main

Ben Schnall Photos

Glass and metal entrance to the main display room makes it visible to all visitors in the building, not only to customers

center of attention. The photographs show how flexible is the vocabulary of illumination, using not only ceiling-recessed down lights, indirect incandescent lighting, and fluorescent lights in coves, but also — and most striking — the newer expedient of the scintillating "egg-crate."

The mutual relationship between the control room, the "announce" room, the theater and the director's office is very closely considered, even though to the visitor the impression given is one of casual ease. Of great importance to the company is the result seen in the very last picture of our series (bottom of page 94) that there is a clear view from the control room into both the "announce" room and the theater, but there is *no* direct access between any of the three. All traffic has to go through the vestibule.


TELEVISION
DISPLAY STORAGE
NEW PRODUCTS INTRODUCTION
P.A. CONTROL ROOM
STUDIO ANNOUNCE ROOM
PROGRAM DIRECTOR'S OFFICE
DISPLAY AREA
ALCOVE
W.
M.
RECEPTION LOUNGE
INFO
UP
ENTRANCE LOBBY
TEL.
TEL.
TEL.
CHAUFFEURS WAITING ROOM
SPECIAL SALES DISPLAY & CONFERENCE ROOM
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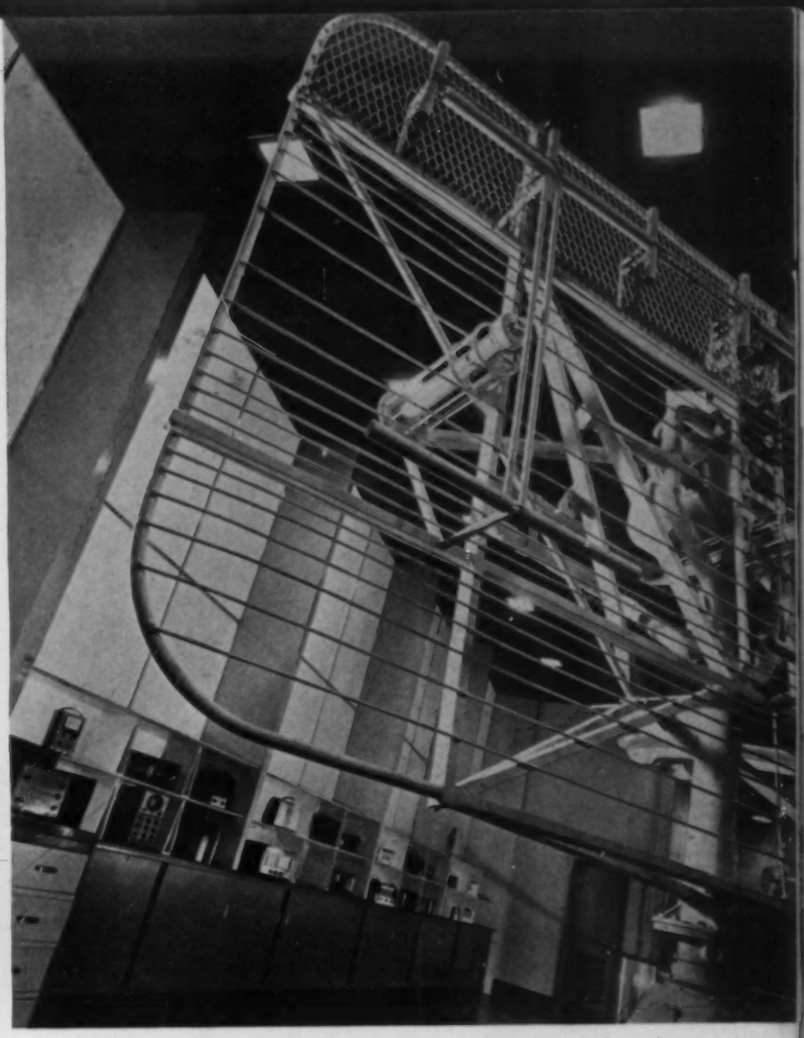
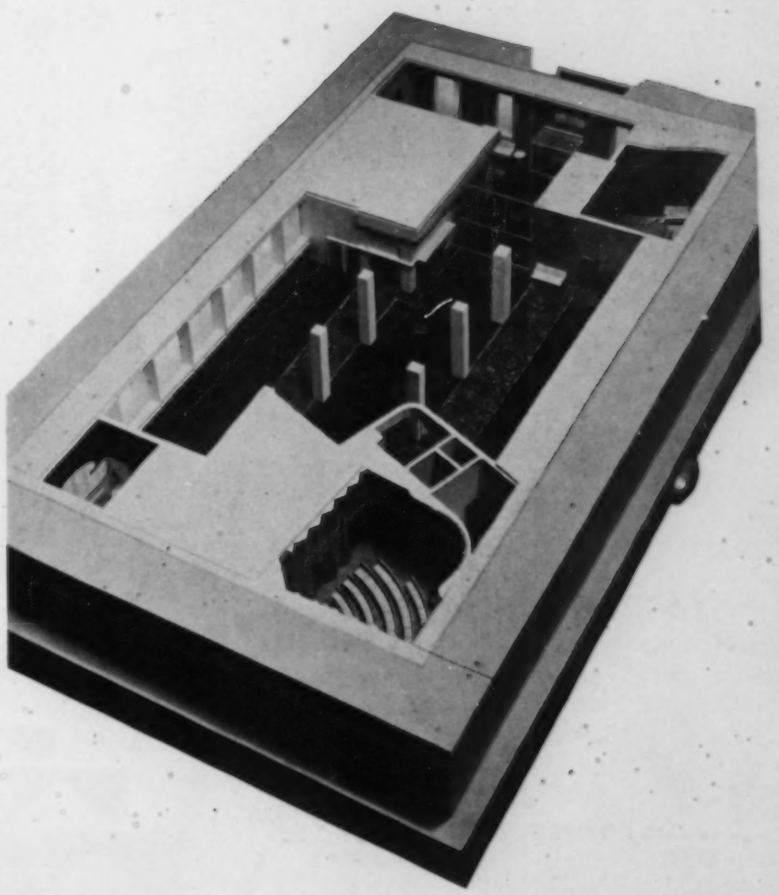




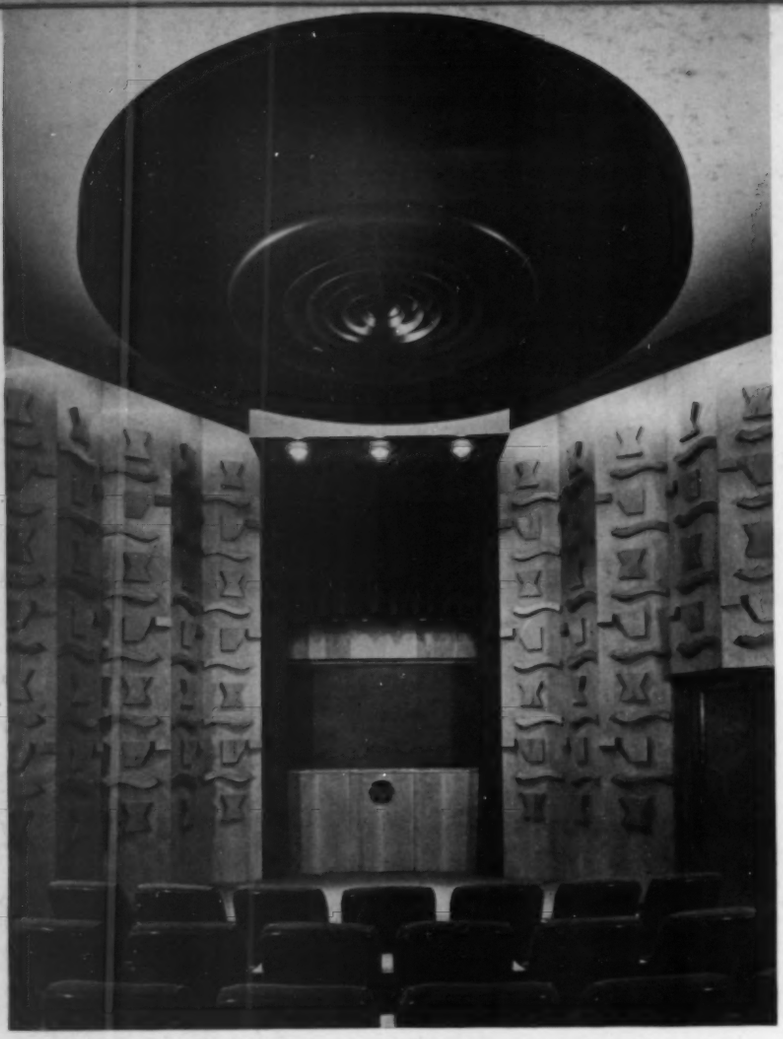
OPPOSITE PAGE, top, two views in reception room. Photomontage lit by continuous flush down lights. Ceiling, deep green acoustic tile, carries through into main display room. Walls and curtains gray, furniture natural birch, floor black.

THIS PAGE: Top left, entrance to conference room; top right, view through a piece of radar equipment into the main display room. General illumination, recessed flush incandescent down lights; cold-cathode tubes above metal egg-crate louvers hung from air conditioning ducts; display light from recessed spots. Glass is sand-blasted plate. General colors same as entrance foyer, accents from materials on display, mainly free-standing on floor

THEATER (or "New Products Introduction Room"), opposite page, has a rear wall with concave surfaces covered by traversing curtains, convex surfaces uncovered. The ceiling is of plaster and there is a sound-absorbent panel above the stage. Floor carpet and walls are deep green, ceiling green and deep grayish pink; seats are covered by light green upholstery. (Curtains behind stage are brilliant red.) The combination of hard plaster rear wall and soft curtain gives control over brilliance or softness of sound in various registers

THIS PAGE, top: Two views in conference room. West wall is in birch paneling, north wall pink marble, east wall deep blue-gray painted plaster, south wall curtained. Light is from cold cathode tubes in ceiling troughs and incandescent down light in the central hanging soffit

RIGHT: Sales executive's off-entrance alcove



LEFT: Front of theater has a stage that more often presents equipment rather than people. Sound-absorbent dropped panel above stage carries spotlights; general indirect light by incandescent bulbs on hung soffit is controlled by electronic dimmer. RCA emblem conceals 10-in. loudspeaker which connects with sound-film projector at rear for theatric programs

RIGHT: Natural birch paneling arranged in zig-zag patterns breaks up sound reflections, aided by the large-scale applied figures, also in the same birch finish.

Photograph gives a good impression of the light drifting down this textured surface from the hung soffit; still further light comes from above the dramatic central ceiling anemostat

LEFT: Rear of theater stands in effective contrast to the stage. The plush curtain provides acoustical correction for the concave wall

Windows of this sound control room are quarter-inch plate mounted in aluminum frame and set in mastic felt and rubber.

The console thus enthroned controls distribution of sound and interplant broadcasting to 92 areas in 19 buildings, some of them several miles from the plant. Equipment racks in same control room are through-wall mounted to provide easy access from front and rear

Of high importance in the planning of sound control facilities is this through-vision (below, right) from control room into both theater and "announce" room (sound-proof glass) but physical access is only through an intermediate vestibule

DESIGN FOR DEMONSTRATING DESIGN

Offices and Laboratory for Walter Dorwin Teague, New York City

Ben Schnall Photos

SINCE design is never static, but must follow the ever-changing dictates of function, it seems perfectly logical to expect that a professional designer would find his own offices calling for his services, as expansion and new activities affect their functioning.

The photographs show a recent rearrangement of the offices of Walter Dorwin Teague. The alterations principally provide better quarters for Mr. Teague and his partner, Robert J. Harper, director of design, on the 29th floor at 444 Madison Ave., New York. The firm also occupies the 41st floor, and half of the 23rd in the same building, with a shop and laboratory floor at another location. Such separations are typical of spaces in crowded New York offices, and not infrequently introduce complications in functional arrangement. Here expansion of the executive suite necessitated the moving of the accounting department and much of the stenographic and filing services to other floors.

Mr. Teague's office is designed for multiple use. A large curved desk, with comfortable armchairs facing it on both sides serves for the usual discussions with members of the staff and with individual visitors. The drawing board is conveniently located adjacent to the desk. A conference table seating eight is provided for discussions with clients. In one corner a built-in couch, lounge chair and low coffee table make a comfortable setting for less formal occasions.

The ceiling of this room is hung below the beams and faced with smooth acoustic material. Two fluorescent fixtures running the long way of the room provide a high level of illumination, and there are additional concealed lights over the cork wall and the couch. The floor is carpeted over a heavy pad, and the combination of carpet with acoustical ceiling and draperies makes for maximum acoustical comfort.

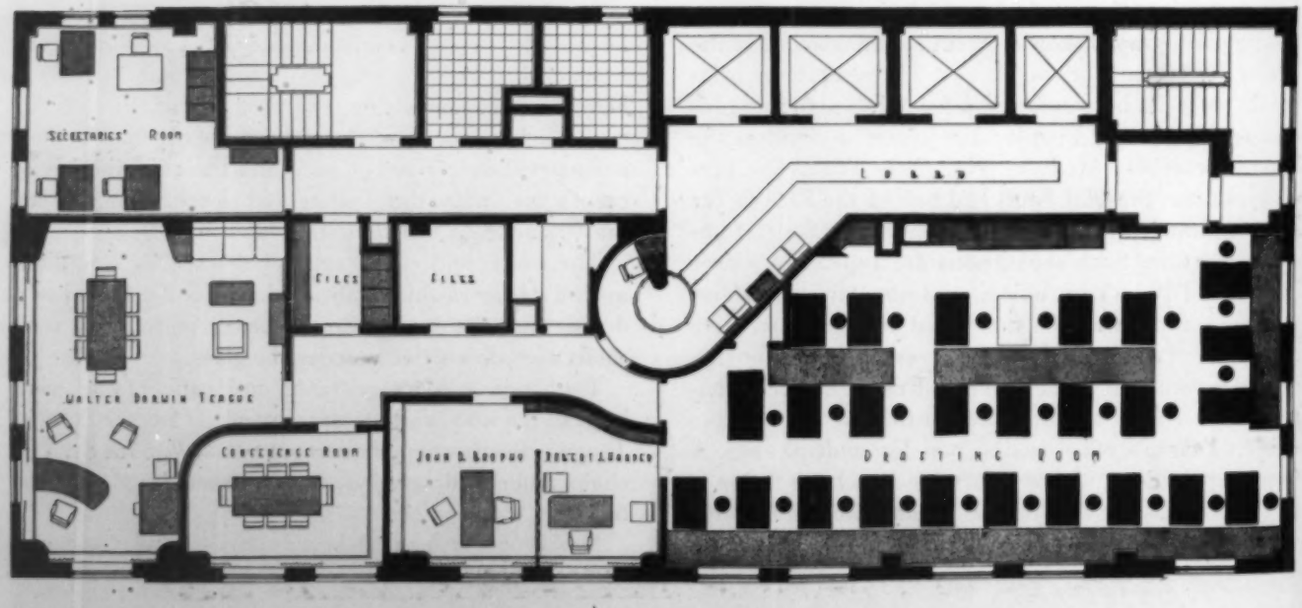
The couch and chairs are upholstered in vermillion and off-white, rawhide Fabrikoid. The coffee table has a double top, the upper being of heavy plate glass, with shells used decoratively under the glass.

The desk, conference table and coffee table were built in the woodworking division of the Walter Dorwin Teague Development Laboratory, 245 W. 55th St. The chairs and couch were constructed from Teague designs by Artek-Pascoe.

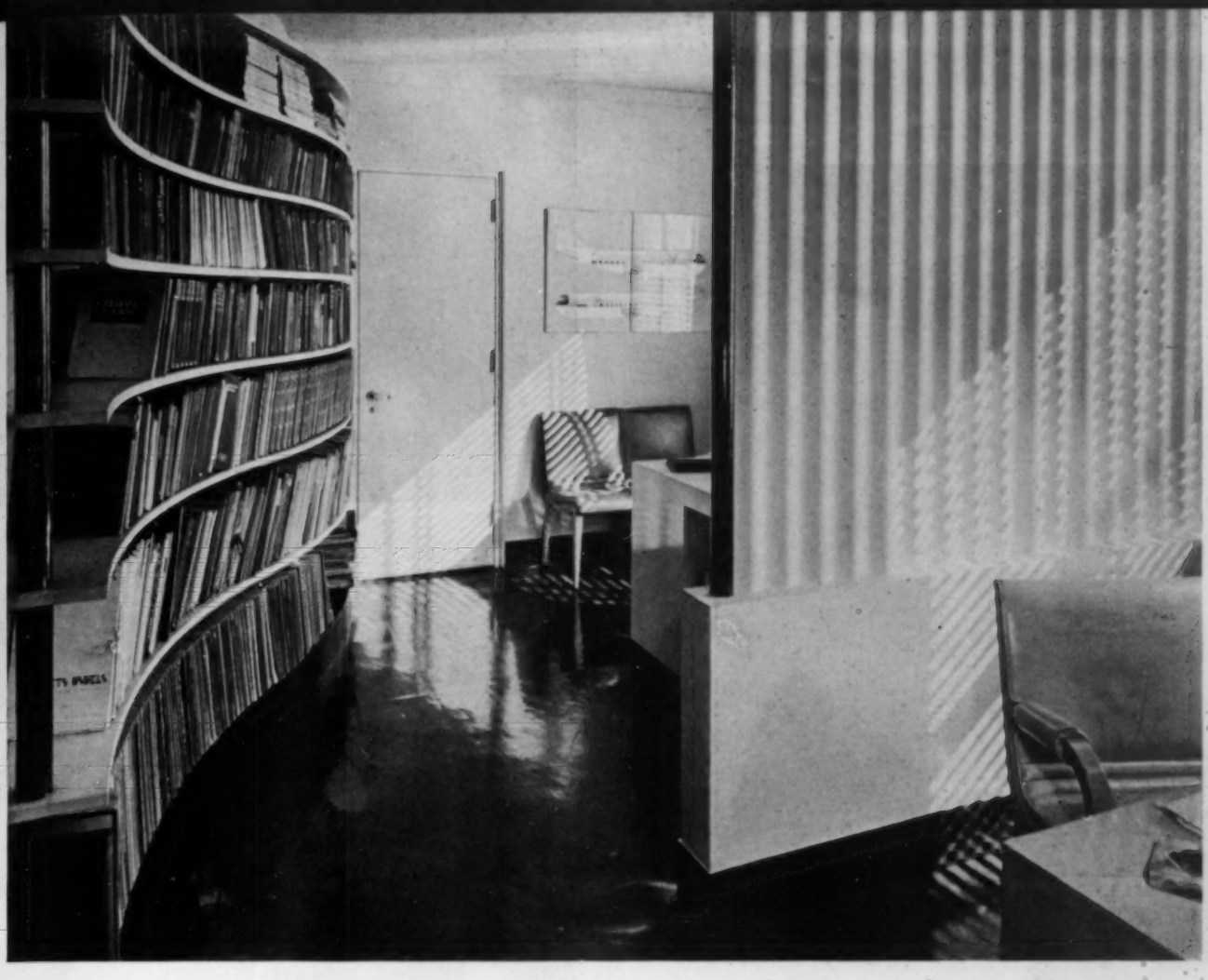
Mr. Teague's drawing board was especially designed and constructed with a framework of aluminum.

New office and conference room of Walter Dorwin Teague, a former founder and president of the Society of Industrial Designers. His new office is part of a major alteration to the headquarters office

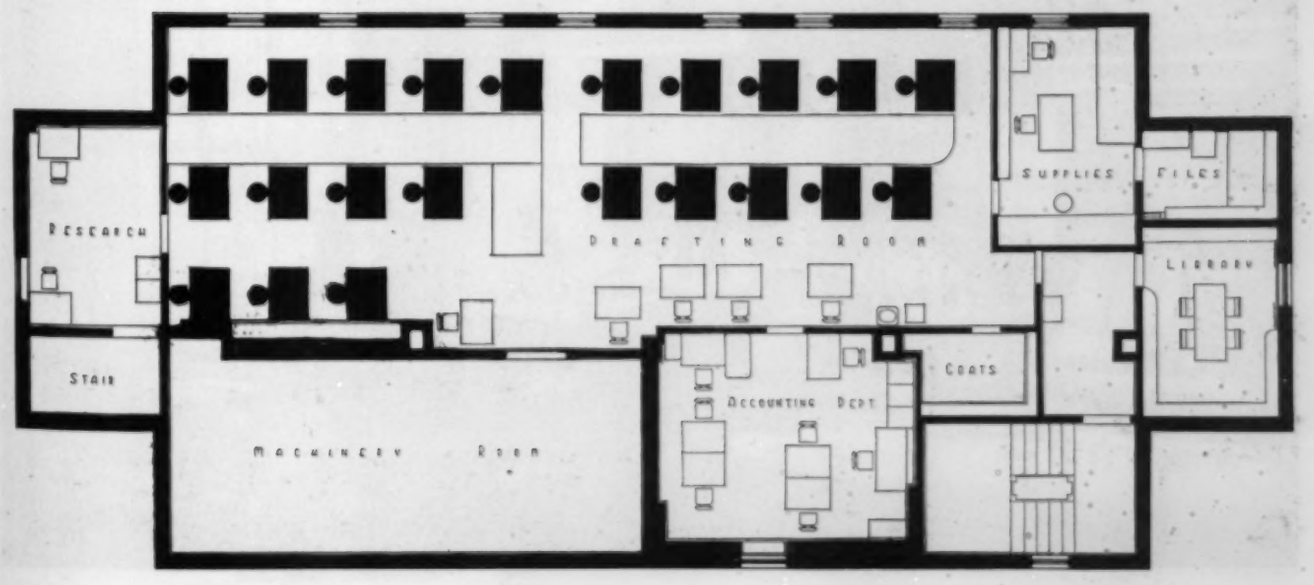
All furniture in Mr. Teague's office is of bleached rift oak except a cabinet against the wall, which is lacquered gray with gold fittings. The bleached oak is used throughout the floor, with vermillion and rawhide upholstery. Floor of lobby and offices black linoleum



Twenty-Ninth Floor



A free-flowing wall, in Mr. Harper's office, with free-flowing bookshelves, is photogenic and intriguing, but is more functional than whimsical. The rounded reception lobby put a twist into the interior corridor leading to the drafting room, the curve necessarily being taken out of the office space (see plan on opposite page). Mr. Harper, director of design, has his own door directly to the drafting room (background in photo). Below: the drafting overflows onto the 41st floor. The accounting department was moved here to permit alteration on 29



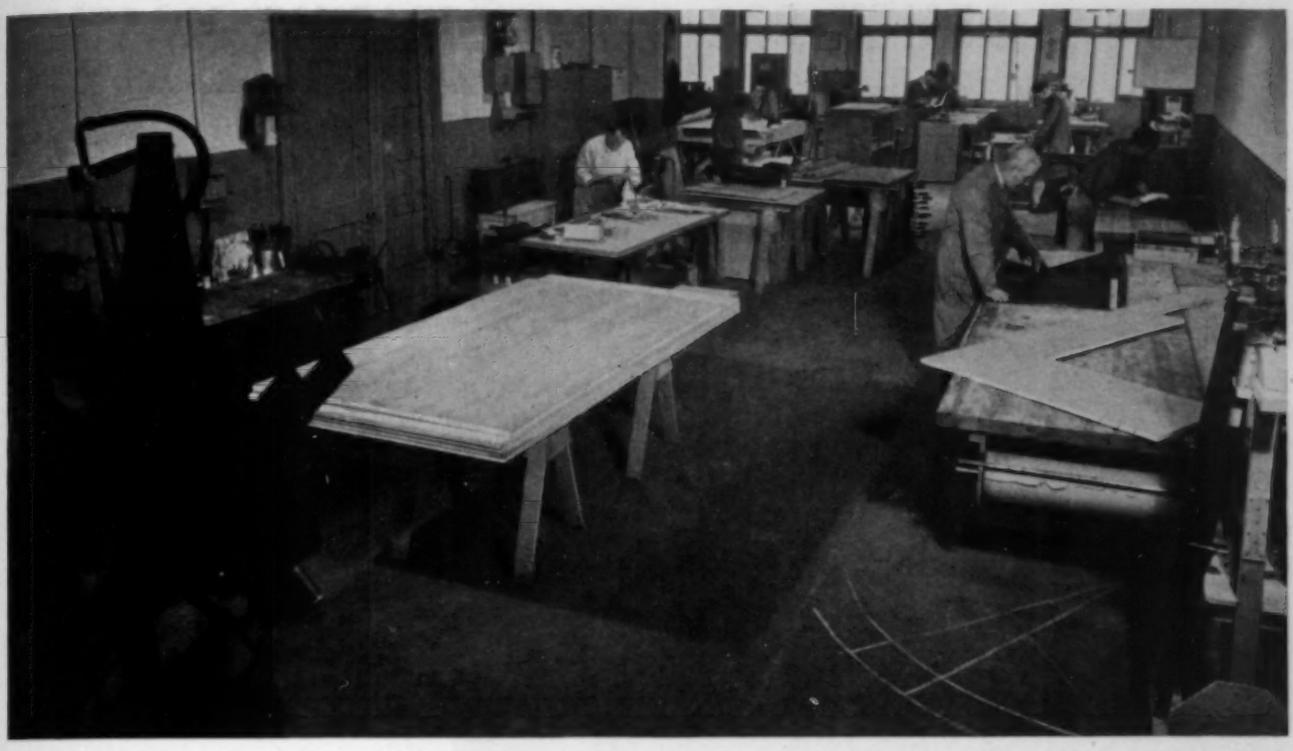
FORTY-FIRST FLOOR

Above and below: Ben Schnall Photos

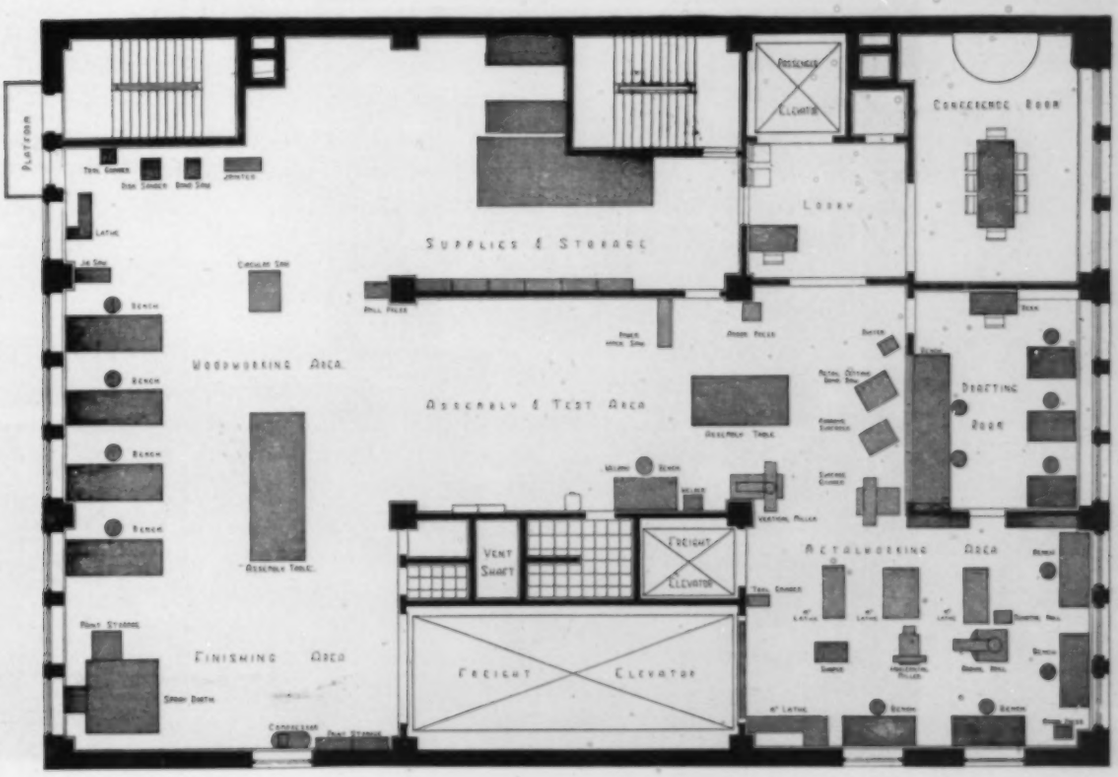
Robert Elliot Photo

Below and right: Richard Garrison Photos

Above: a discussion of product design in the conference room on the 29th floor. Right: two views of the Teague Development Laboratories; these are in a separate building, at 245 W. 55th St. Below: view of the drafting room on the 29th floor; there is another on the 41st



The model shop of the Teague Development Laboratory is equipped with all necessary woodworking machinery, including a spray finishing booth. The laboratory occupies 5400 sq. ft. at 245 W. 55th St., New York, and contains also a machine shop, model shop, electronics laboratory, drafting and conference rooms. Here the imaginative theories of the design staff get their first test in visual and working models. Here also tests can be made of the effect of function on design and vice versa. The laboratory is staffed by a combination of test engineers and development engineers and skilled mechanics, to aid, and also challenge, the design staff

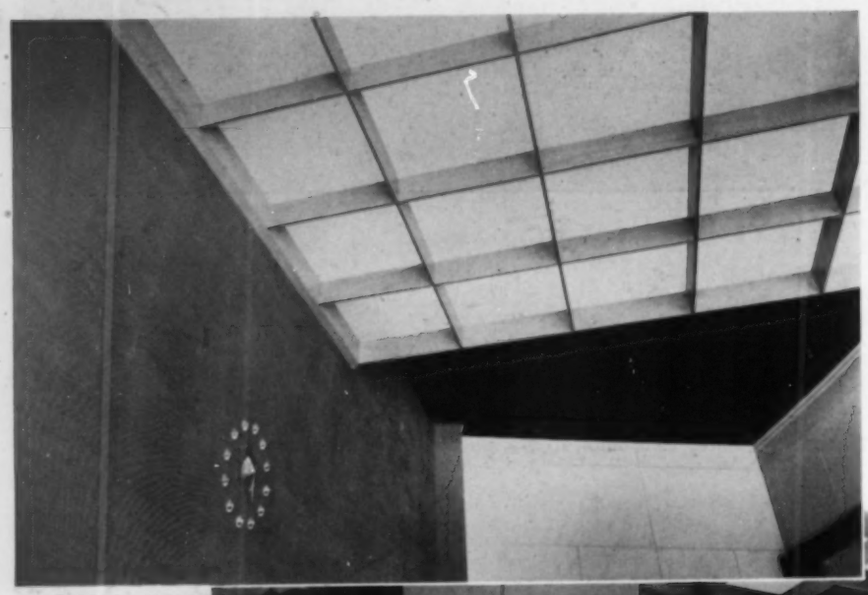


Plan of Development Laboratory
Fourth-Floor Plan of 245 West 55 Street

DESIGN FOR DEMONSTRATING PLASTICS

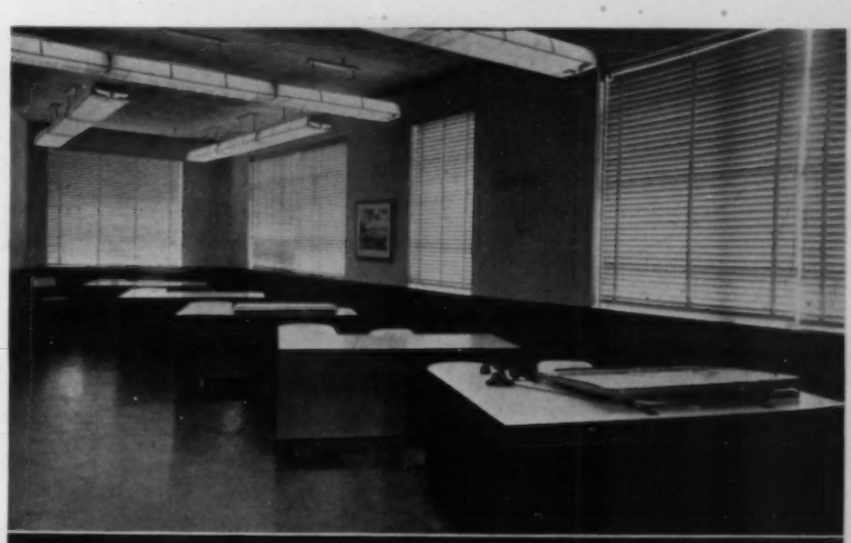
Quarters for Industrial Design Staff, General Electric Plastics Division

WHEN William B. Petzold designed quarters for himself and the design staff for plastics, he naturally leaned toward glamorizing both the office and the product, while making use of a trapezoidal remainder of space. The color scheme is a manipulation of blue-gray walnut, gray and a redwood tone on a rough-textured wall, with transparent plastic accessories. Furniture includes a sofa of foam rubber construction, covered with black Vinylite. Lucite appears in the door pulls, fashioned in the occupant's initials, in the conical clock knobs, switch plates and so on. Plexiglas makes the door to the outer secretarial office. The desk unit has work surfaces of G-E laminated plastic; the tubular supports of the desk are of the same material.



A novel use of the egg-crate with fluorescent lighting — a covered egg-crate dropped 2 ft. below the ceiling. Each 24-in. module is covered with a panel of translucent laminated plastic, giving uniform distribution of light without glare

The plastics demonstration continues in the space occupied by the design staff. The drafting-desk units have the plastic top, and translucent plastics form the fixtures for fluorescent lighting, also the egg-crates incorporated in fixtures



Desk is part of a single unit incorporating built-in storage cabinets and drawers. Drawer pulls, fabricated of Lucite, are mounted on adjoining ends of drawers, to present a decorative unbroken line from top to bottom of the drawer assembly

The secretary's desk takes its form, also its materials, from the designs for the boss's. The fluorescent fixture above is a dramatic touch in an office devoted to plastics design. Partition and wide door (seen in open position) are of Plexiglas

FRONT OF GOLD WITH DUAL MEANING

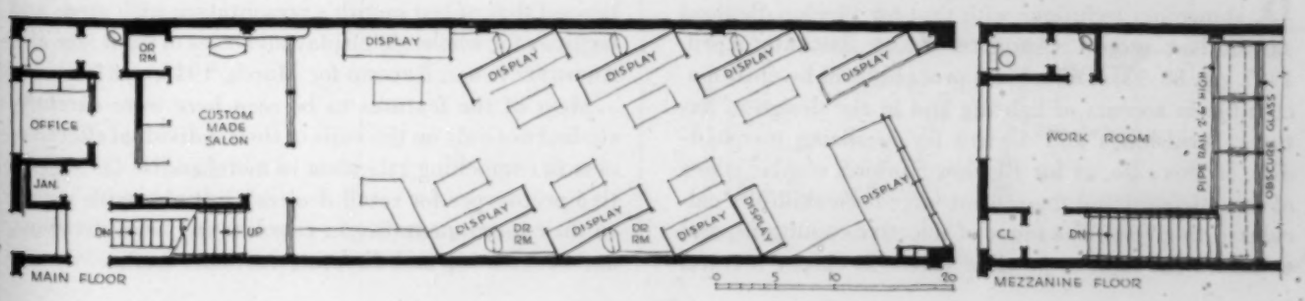
EDDY HARTH'S, BEVERLY HILLS, CALIF.

Paul Laszlo, Designer

Julius Schulman Photos

GOLD-FILAMENT glass in these windows, says the designer, serves a double purpose, giving a soft aureate hue to the merchandise and, further, a measure of protection against too much sunlight. Other materials in the façade are travertine, bronze, and black structural glass. Also, three different types of neon light are used on the front for name-display attraction from various angles.

Inside, display cases are arranged to be visible from the street as integral parts of the whole, and to give, at the same time, an impression of distinct "sales units." Note also, in the plan, how the arrangement gives each unit its own dressing rooms. Mirrors are hinged to cases for adjustment by customers. Above the 8-ft. open screen subdividing the "full-dress" unit at back are corrugated glass panels, behind which is the mezzanine work and alteration room.



Receptionist's desk, to left of carpet showroom entrance, has perforated white-lacquer panel, natural oak trim, plastic top. In background is a wood-screened coat and luggage room. Behind the open screen, to left, is a corridor window, telling a story of yarn and carpet products

WHOLESALE RUG AND YARN SHOWROOMS

JAMES LEES & SONS CO., MERCHANDISE MART, CHICAGO

Raymond Loewy Associates: J. Von Der Lancken, Leon Hyzen, Architects

READERS will be interested, perhaps, in comparing this showroom technique with that for Bigelow-Sanford shown last month (ARCHITECTURAL RECORD, April, 1947, pp. 88–93). Differences probably will be most discernible in accents of lighting and in the design of fixtures, furnishings and devices for focalizing merchandise. In this case, as for Bigelow-Sanford, combinations of incandescent and fluorescent have been skillfully calculated to give a wide range of selective conditions, and to insure the highest possible values in carpet texture.

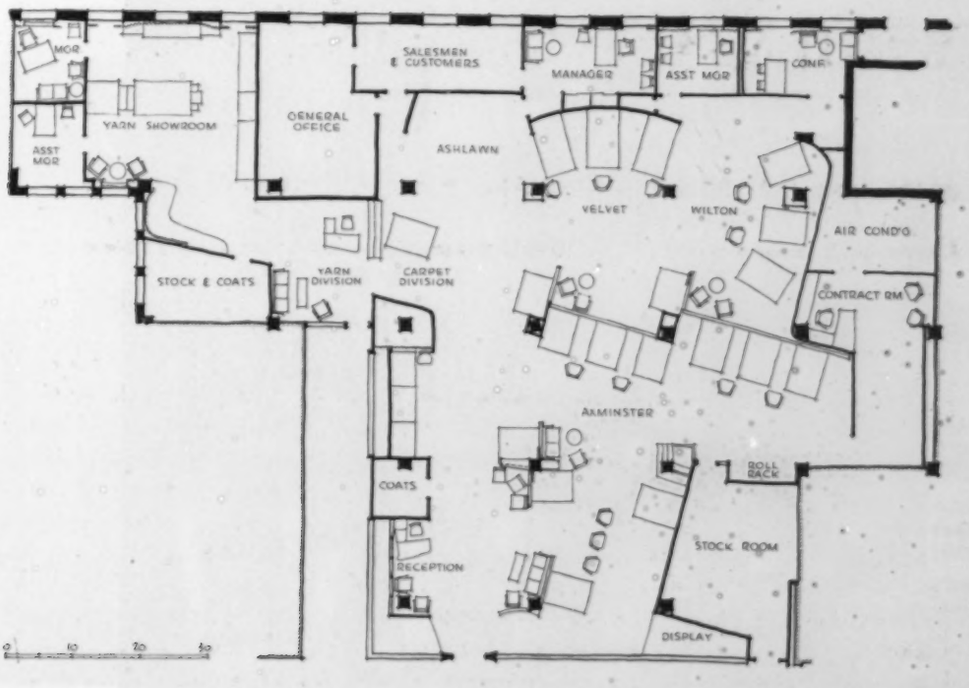
The scope of this showroom for Lees, of course, extends beyond that of last month's presentation with areas and facilities for wholesale display and sales of yarn (see also ARCHITECTURAL RECORD for March, 1947, p. 84).

Most of the features to be seen here were carefully studied not only on the basis of their individual effectiveness in compelling attention to merchandise (as suggestive prototypes for retail dealers), but also with regard to their instrumentality in coordinating sales divisions, and in orienting and directing customer traffic.

Bronze wall fixture at extreme end of entrance-main circulation axis designates and describes the carpets on major display; it is lighted indirectly. Easel racks and wall tray units under the dropped ceiling show samples in various color ranges and textures, comprising the complete Lees line

Hedrich Blessing Photos

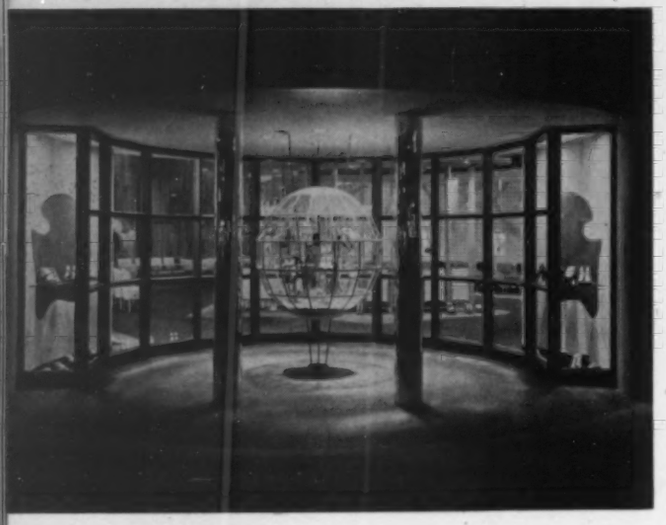
View at right looks back toward receptionist's desk and carpet showroom entrance. Doors are oak with white-trimmed glass panels, white marble frame. Carpet is gray beige; chairs are terra cotta fabric. Interconnecting entrance to yarn showroom is at extreme right



Door of corridor entrance to yarn showroom is also of oak. To right may be seen one end of a long display window, bordered in corrugated plywood. This continues the product story related in a preceding window by carpet receptionist's desk (see p. 104). Door knob and name letters are bronze. Large window to left discloses yarn reception area display

Left: yarn and carpet showrooms are interconnected by oak doors. Large dividing glass to right, supplemented with terra-cotta colored flower boxes and green plants, contributes clear demarcation and, at the same time, an open invitational effect between the two main divisions. Pinwheel display contains balls of yarn in spectrum colors; wall is deep brick red

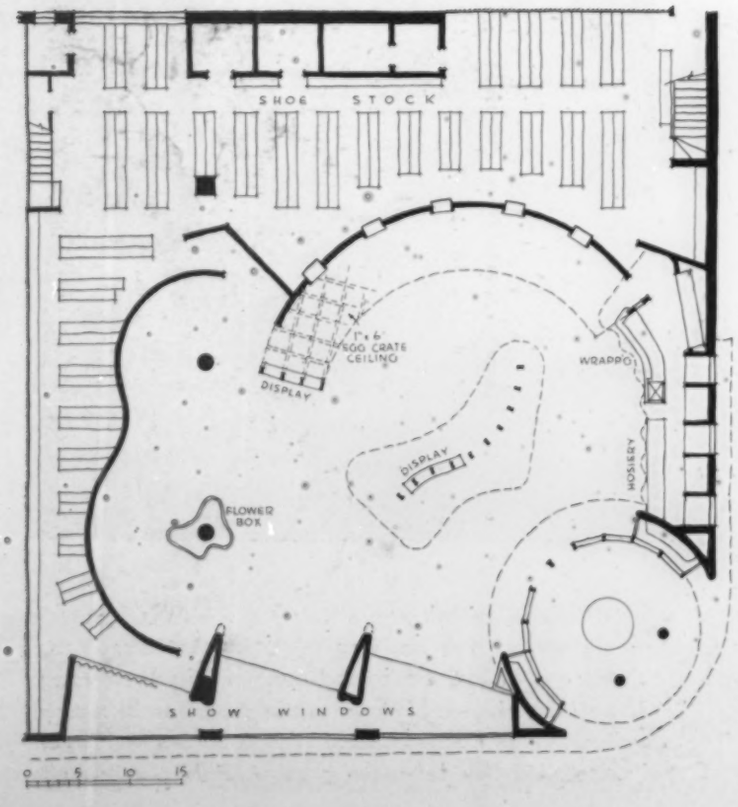
Directly above: general view of carpet showroom from point in outside corridor. Foreground area is devoted to Axminster carpets; Velvets and Wiltons are beyond partitions of white cording. Above (top): close-up of Velvet section shows special textured wall covering by Katzenbach and Warren; bar partition sets off "roomette" display. Left: panel at rear is of deep-green muslin



ANSONIA SHOES

Morris Lapidus

Architect



THE architect personally likes this job "because it was possible to become rather playful, to carry out the feelings of fun and frolic with which most people come to Miami."

Exterior show windows were scaled down "for intimate display," and to curtail spoliative effects of flooding sunlight. Spherical entrance display case is metal, plastic and glass. Color scheme of exterior walls is gray, yellow and deep blue.

Squat buttresses discernible to left in photo directly above are divisions between show windows, which open also into the store interior. They have no backgrounds for shoe display except "exotic foliage" set along the inside window ledges, giving in addition "a touch of the outdoors to the interior." Irregular piercings in the buttress walls are also used for spot shoe display. Note in the plan the substantial allowance given to stock, with convenient access from all selling points.

Moser & Son Photos

IN A FLORIDA SETTING

Above, left: wall of oak batten flooring forms selling background, conceals the stock behind. Wall-papered portion of screen wall is varicolored pastels; display niches contain bright Parakeets. Directly above: wrapper and floor cases are quilted in lime-yellow leather; drawers behind wrapper are for shoe ornaments. Below: island selling unit doubles as a display feature. Lime-yellow canvas forms a "nautical" background for chairs. Furniture throughout is chartreuse, forest green, lime yellow. Carpet for defining selling areas is rose; elsewhere, forest green

Ben Schnall Photos

Exterior is of black structural glass, white window frames, stainless steel canopy; awnings are blue and white. Holes over entrance and window bays are 4-ft. in diameter, admit daylight; angle of display windows helps prevent veiling glare

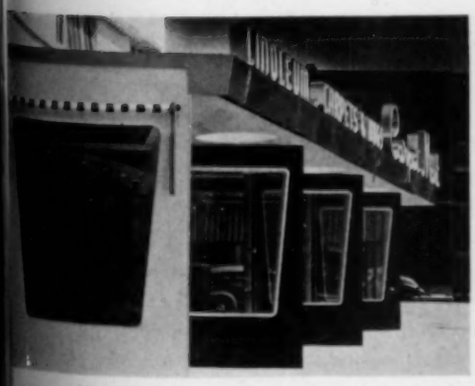
CARPET SHOWPLACE FOR BUGGY TRADE

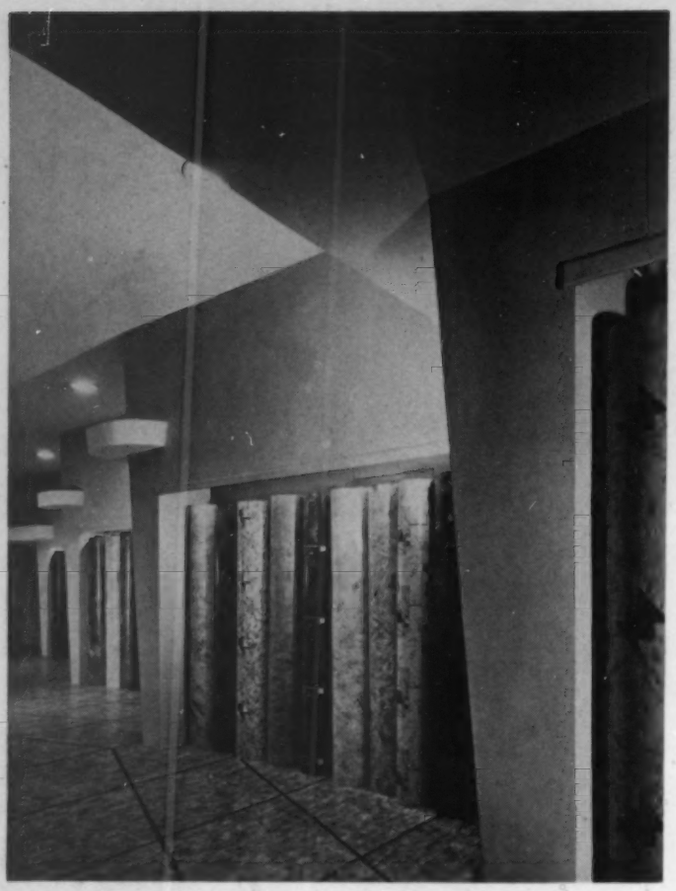
CARPET MART, HEMPSTEAD, N. Y.

Herman H. Siegel, Architect; Ernest D. Rapp, Designer

SOLUTION of an unusual site problem, for this retail carpet and linoleum showroom, created a by-product of substantial advantage and inducement to suburban shoppers furnishing motive power to baby carriages. The site slopes abruptly; in addition, there was an existing foundation wall, 4 ft. high, across the present ramp's upper point of termination (see plan, over page). Rather than reduce it at pointless extra cost, the designers capitalized this condition by extending the building front and introducing the ramp to selling levels. The buggies roll up effortlessly, providing huge diversion. In addition, the effect is that of a store front within a front; customers are afforded a mounting view of street window displays from the inside, and of other merchandise through the wire glass screens along the store side of the ramp. Thomas Smith Kelly was lighting engineer; Dominic Milone and Jack Stone were the general contractors.

Egg crate ceiling is deep blue. Wood fins are red and blue. Major areas elsewhere are painted yellow and gray. Floors of ramp and window areas are linoleum





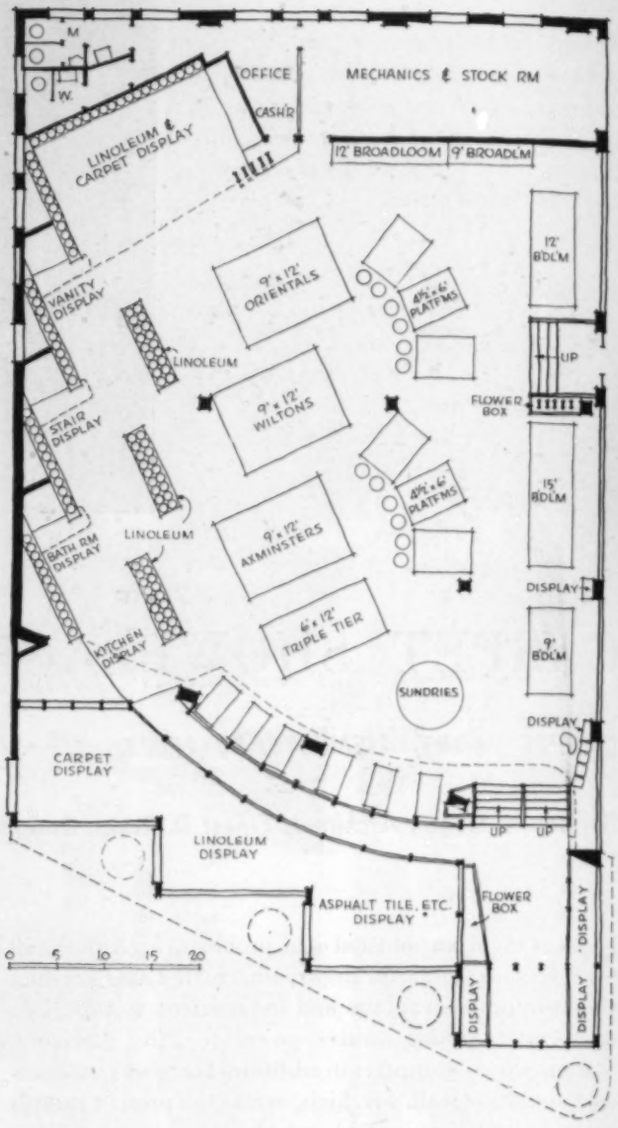
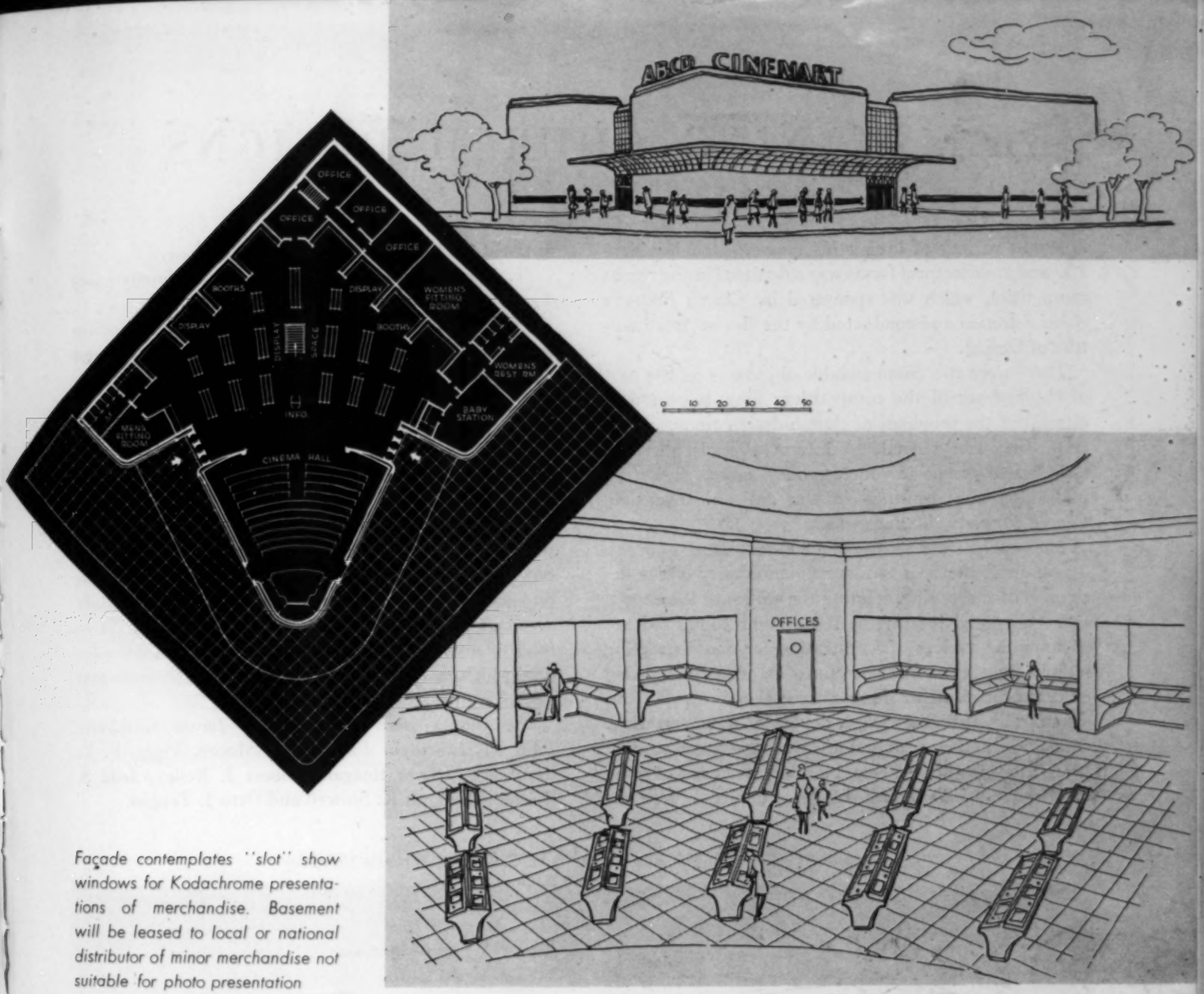


Photo above: recessed "high-hat" incandescent fixtures and cove lighting furnish special effects to linoleum section, and supplement general lighting scheme of the more open main sales area

Left: stairs provide direct access to selling level for patrons unimpeded by perambulators; carpeting is gray. Adjustable spot lights focalize special merchandise display and "compulsion" effects



Façade contemplates "slot" show windows for Kodachrome presentations of merchandise. Basement will be leased to local or national distributor of minor merchandise not suitable for photo presentation

MERCHANDISING TWIST FOR ATOM ERA

CINEMART: A Proposal by Roderick Seidenberg, Architect

THE proponent says: "Recent technological developments are the basic argument for Cinemart — radio, sound movies, technicolor, microfilm, Kodachrome, television. Furthermore, it is justified by certain unmistakable consumer trends. There is a definite leveling of taste and conformity of standards between rural, suburban and urban communities — not incompatible with a general rise in taste (witness the new Montgomery-Ward catalogs). That the consumer expects the market to follow him into his ever more decentralized habitat is thus substantiated: during the last 15 years, large department store business increased about two per cent; that of mail-order houses and chain stores by some 200! Finally, such phenomena as increasing department-store branch locations; sales promotion of cigarettes through mobile movie projectors; Montgomery-Ward's 2500 'Catalog Stores' throughout the country; all add up to some such combined and focussed scheme of marketing, through latest technological media, as here indicated."

The procedure contemplates a far-flung spread of Cinemarts (eventually international) designed to exhibit merchandise chiefly through the means suggested above, and supplemented by such actual samples of fabrics and materials as are feasible. Opportunities for collateral education in manufacturing processes and services such as air, rail and sea travel will be considerable. The proposal envisions hitherto unexampled facilities for centralized and comparative shopping; immense varieties and ranges of merchandise.

PRIZE-WINNING CHURCH DESIGNS

A WIDE variety of interesting current planning ideas and architectural forms was submitted in the recent competition which was sponsored by *Church Property Administration* and conducted by the Beaux-Arts Institute of Design.

There were two commendable objectives on the part of the sponsor of the competition: first, to stimulate interest in the problems of church design among young architects; and second, to inform administrators of churches of trends in contemporary church design by publishing the drawings in the national magazine, *Church Property Administration*.

The problem was to design a 300-seat church for any denomination or sect in a small community of the designer's own choosing, relating the edifice to the chosen site. Of special interest in the designs submitted are perhaps the variety of fenestration for non-distracting natural lighting and the emphasis on dramatic lighting of the chancel. Most designs were cleanly simple and structurally straightforward, devoid of ornamentation, depending on the use of materials, contrasts and studied proportions for their effects. Points of weakness of some of the non-prize-winning designs submitted were, as in the Report of the Jury by Jedd S. Reisner:

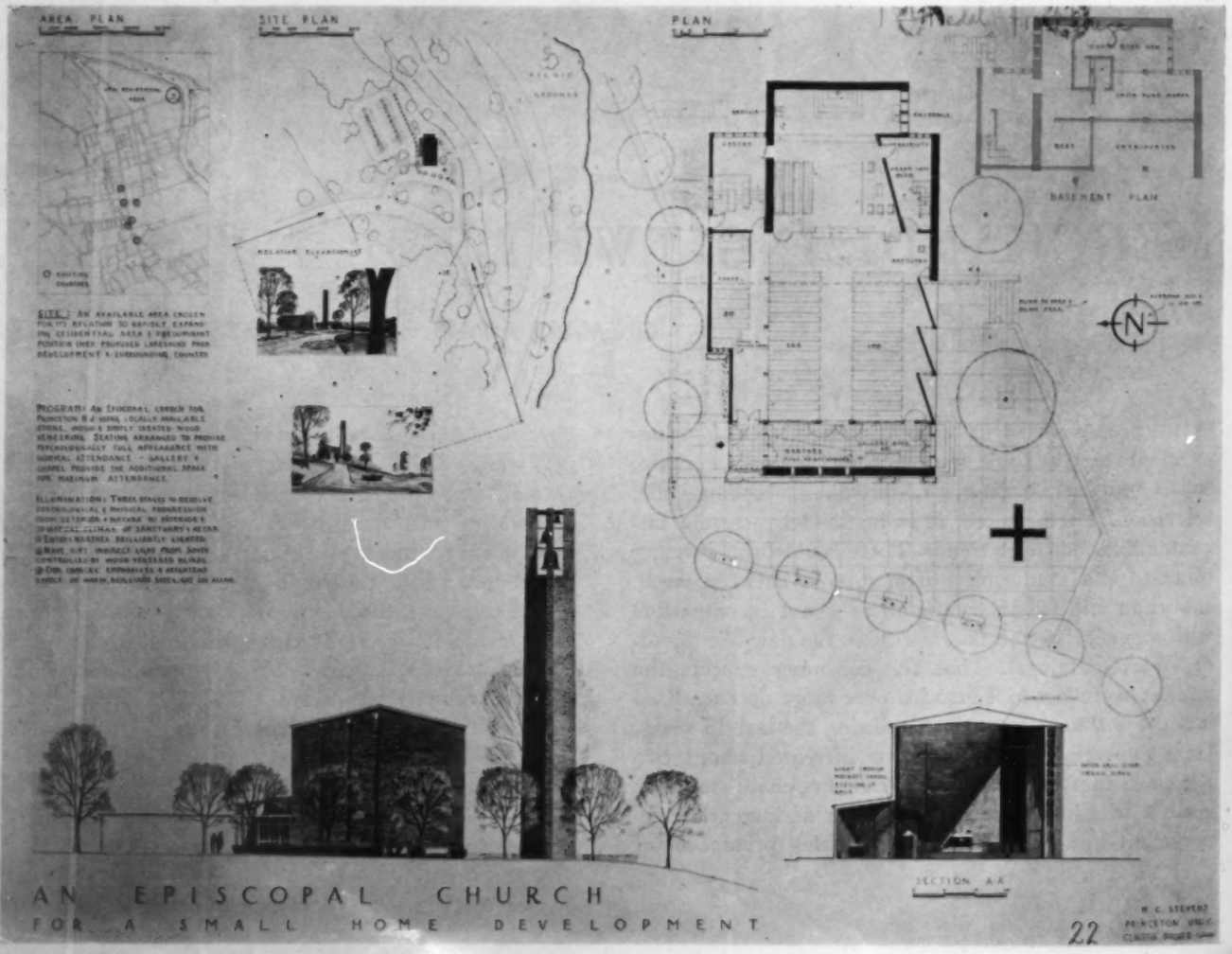
"1. The entrance to the church itself in many cases was cramped and indirect.

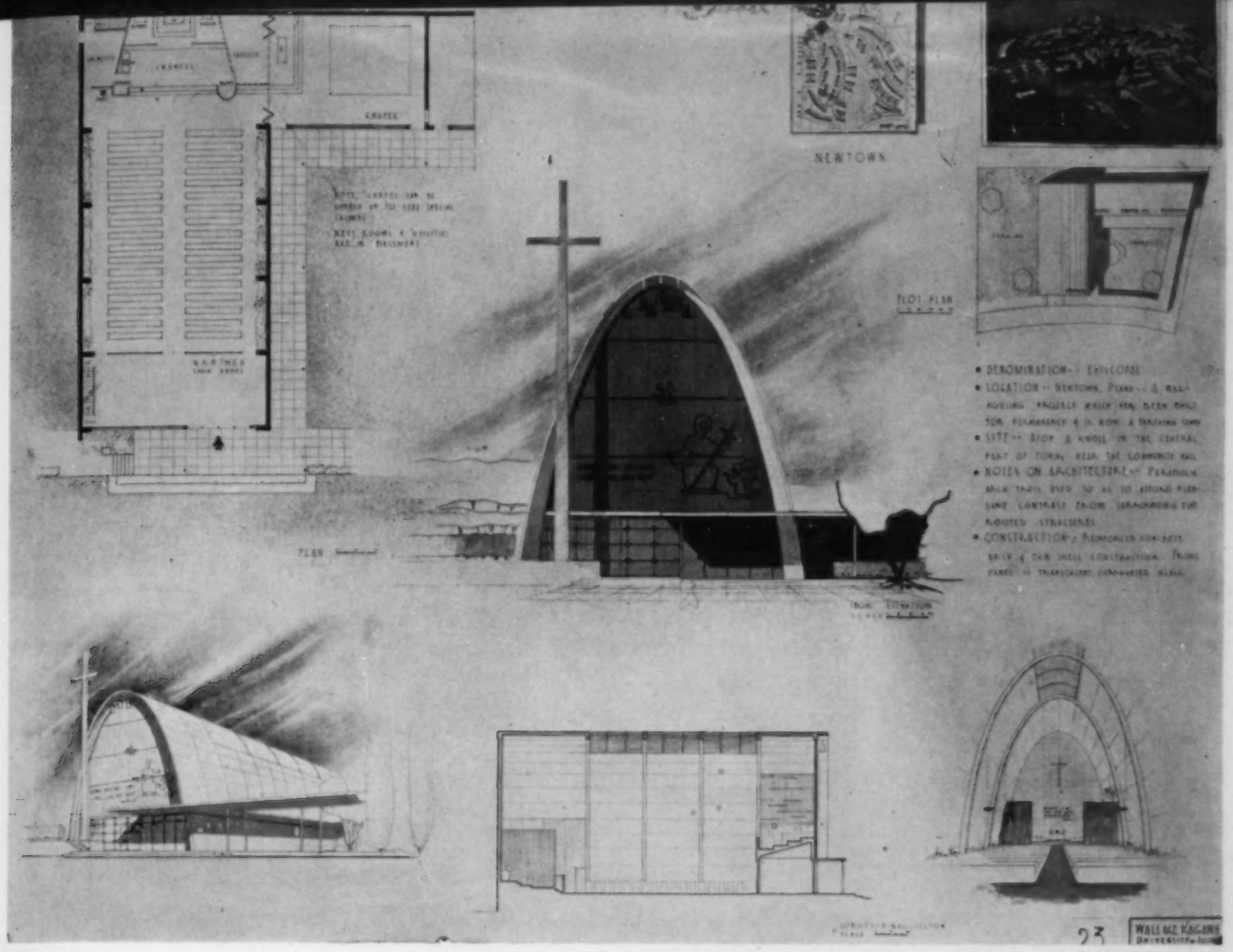
"2. The composition and location of bell towers in relation to the church building were arbitrary and not placed with a sense of usefulness as much as with an idea of composition from one particular angle mostly in straight elevation. This resulted in an unfortunate placement of towers of the church when viewed from other sides.

"3. In many problems the solutions were hard to read because it was difficult for the jury to follow directions from perspective to plan and to determine where certain elements in plan were located in elevation. The jury has neither the time nor the opportunity to study involved planning during a judgment. It is always to the student's advantage to present a clean, simple solution which may be easily read in all its component parts."

The judges were architects E. James Gambaro, John T. Haneman, John C. B. Moore, Viggo F. E. Rambusch, Oliver Reagan, Robert J. Reiley, Jedd S. Reisner, Kenneth K. Stowell and Otto J. Teegen.

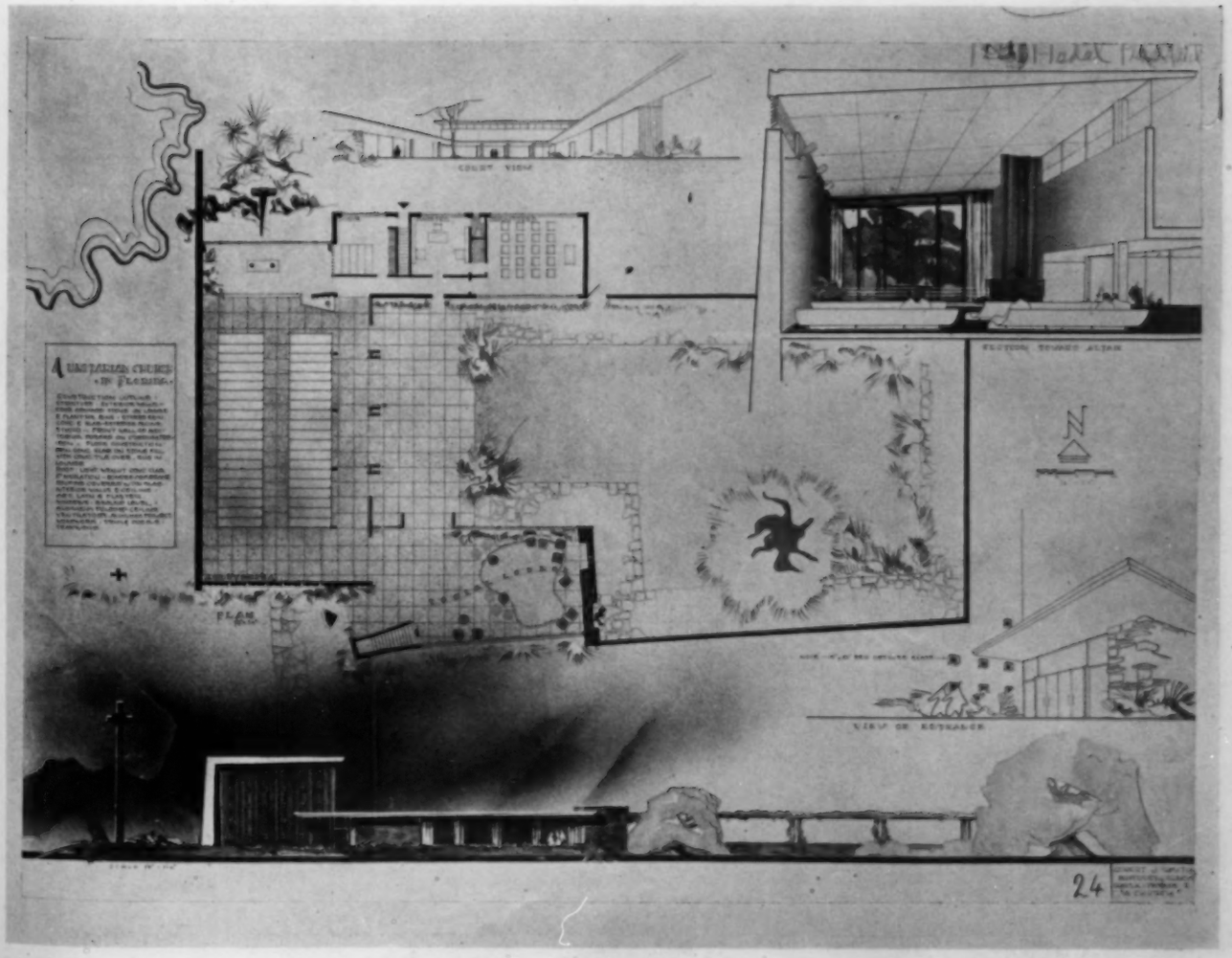
Awarded First Prize of $150.00. Design by H. C. Stevens, Princeton University

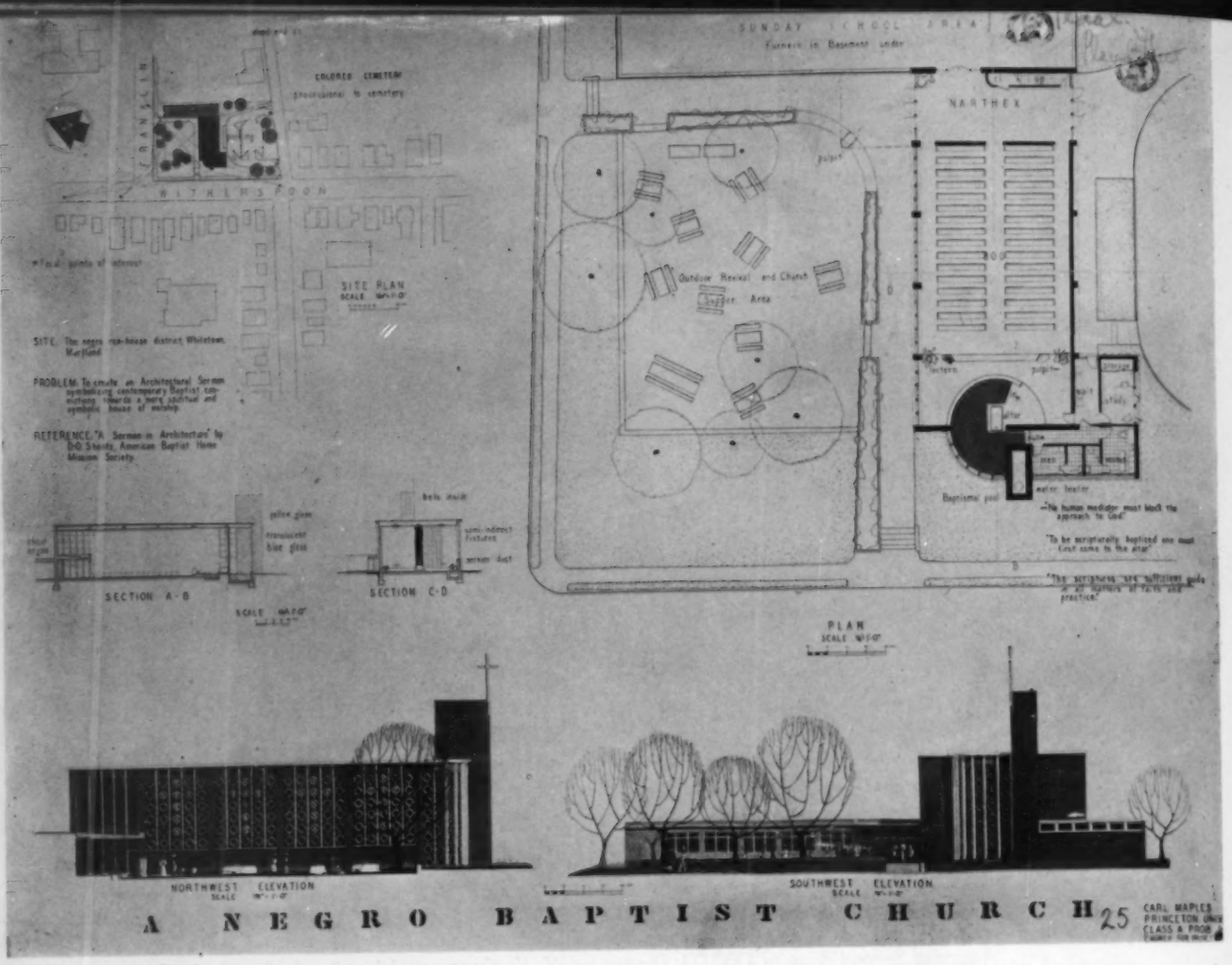




Awarded Second Prize of $100.00. Design by W. K. Kagawa, University of Illinois

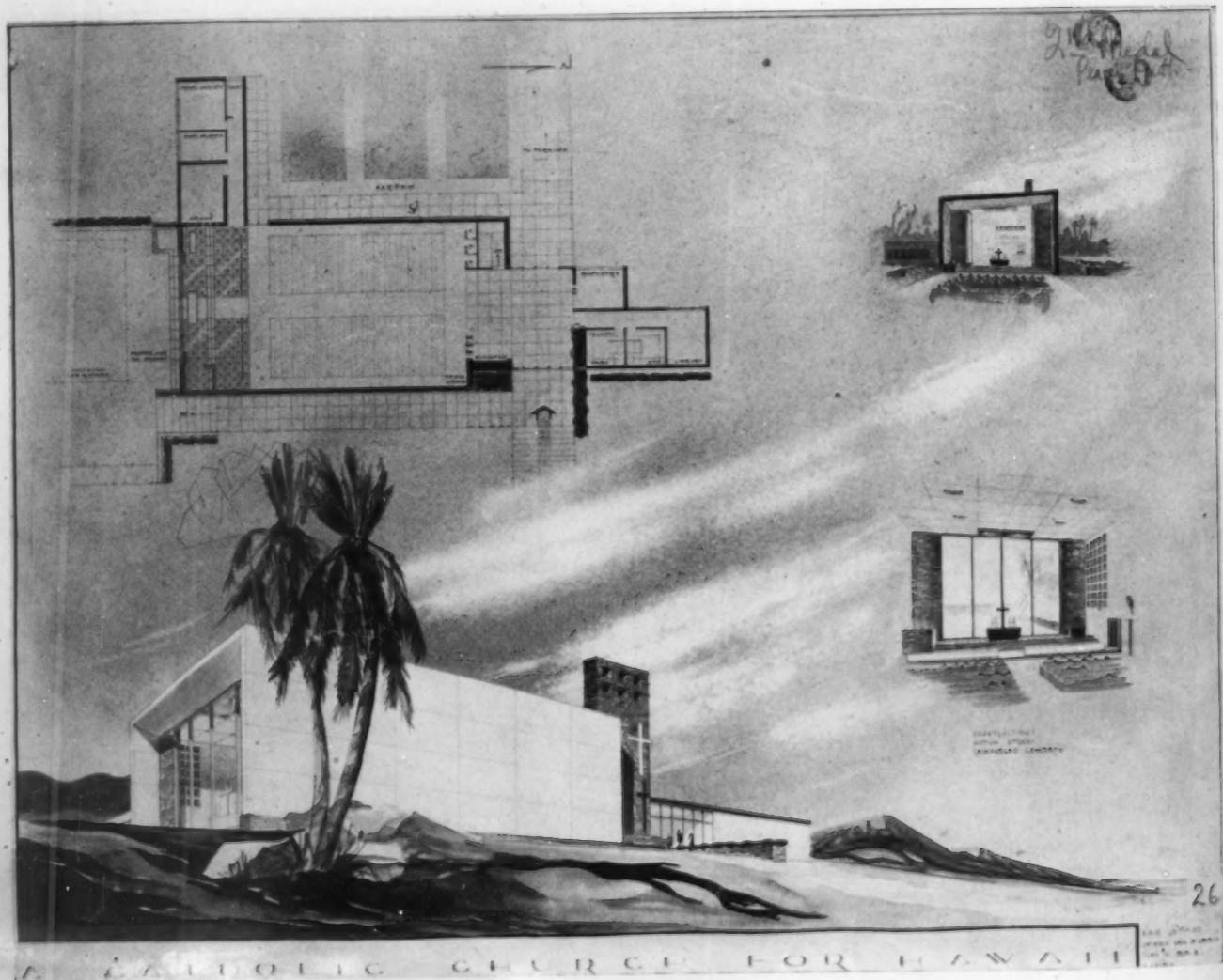
Awarded Third Prize of $75.00. Design by R. J. Smith, University of Illinois

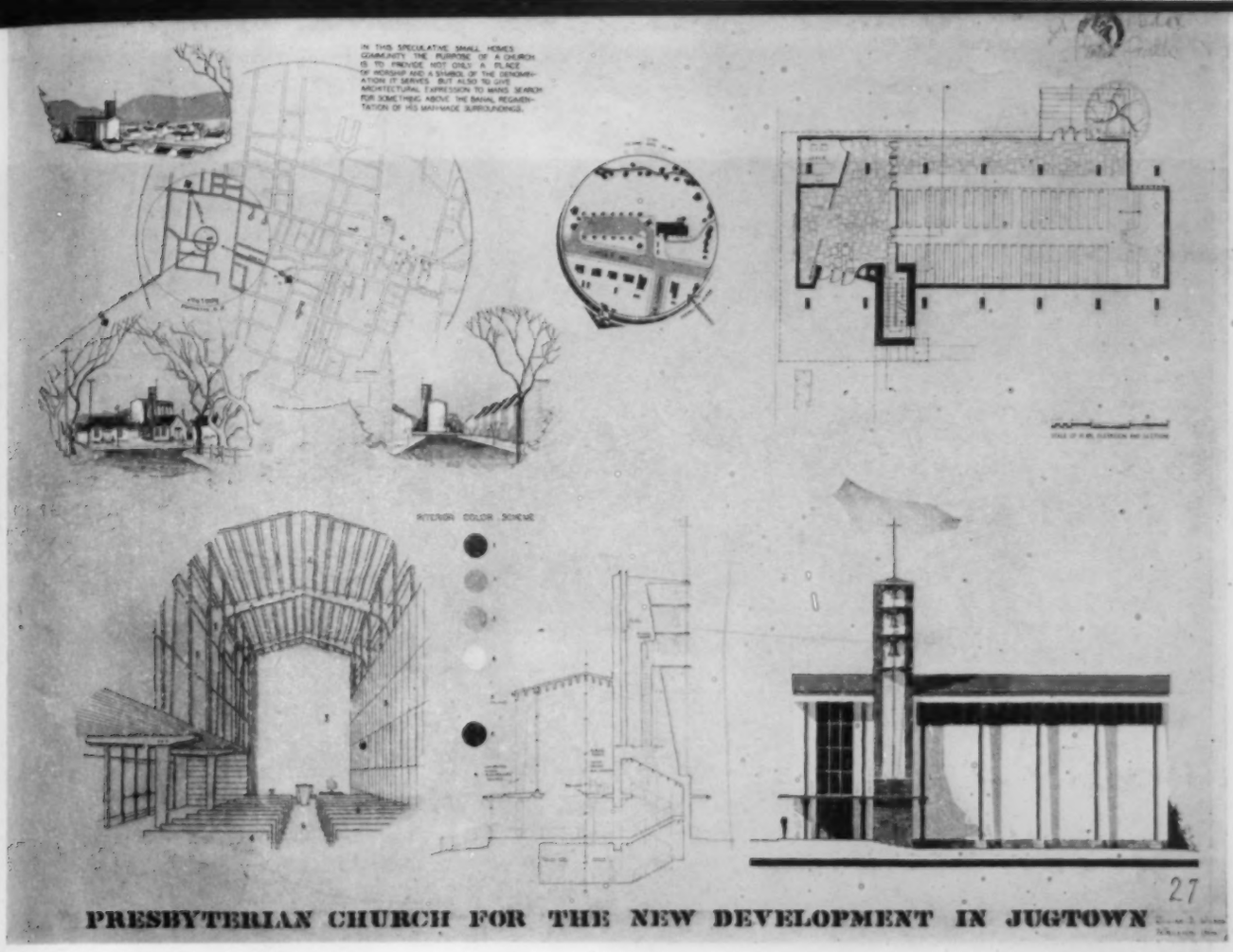




Awarded Third Prize of $75.00. Design by C. F. Maples, Princeton University

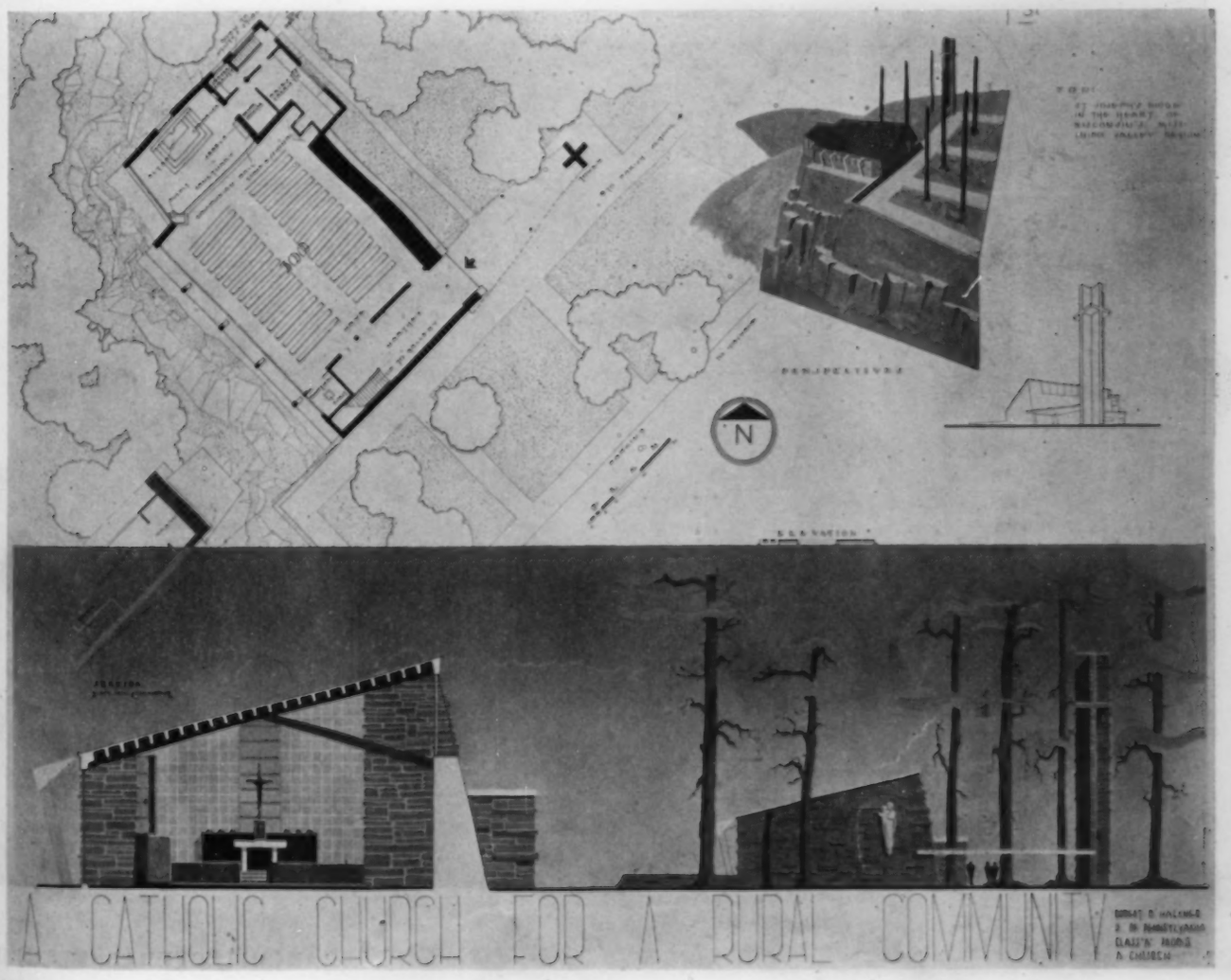
Awarded Fourth Prize of $50.00. Design by E. Jettmar, Catholic University of America

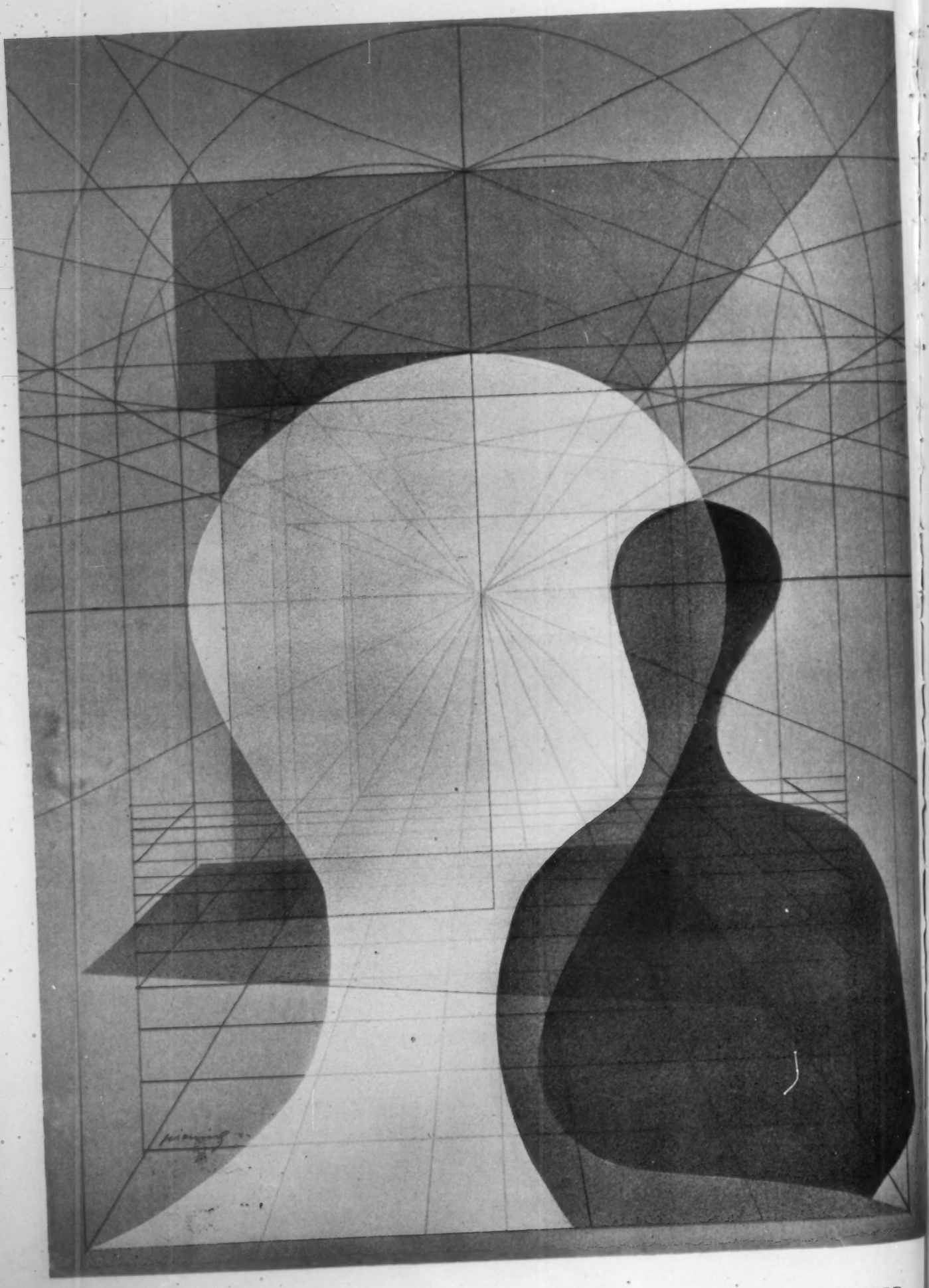




Awarded Fourth Prize of $50.00. Design by W. D. Wilson, Princeton University

Design by Robert Hackner, University of Pennsylvania, which arrived after official judging, but which was highly commended





HOUSES

ARCHITECTURAL RECORD'S BUILDING TYPES STUDY NO. 125

HOUSES ARE FOR HUMANS

THIS statement is, of course, axiomatic, even though it may be lost sight of by a designer who becomes intrigued with architecture for architecture's sake, or with ornamentation for virtuosity's sake, or with peculiar forms for originality's sake, for architects are humans too.

The fact that humans are such peculiar and varied creatures with so many prides, prejudices and preconceived ideas about what they think they want and need in their houses, makes domestic architecture the fascinating study it has always been.

We, as architects, sometimes forget that our clients are human, with all that that implies of human frailties and perversities, and forget that prospective owners' desires are emotionally rather than rationally conditioned. Long association with certain architectural forms often have produced in their minds rather definite ideas of what their homes should be and look like.

"*All know the influence of early home-teachings, youthful reminiscences and associations; if these were always of the simple, the beautiful and the reasonable in the home itself; if the very building never arose before the memory without confirming by its ever-speaking testimony the advantage of embodiment of these principles, and the harmony and loveliness of the result; how better armed to resist the temptations of a false and tricky taste, and to carry on the advocacy of the nobly true, the inventive mind of the artist and the appreciation of the amateur would be!*"

A further analysis of our clients' motives seems indicated if we are to be successful in influencing their thinking to the extent of being able to produce designs which we feel our contemporary professionals will approve. *Pride* is one of the strongest underlying motives of most clients. Their houses are to them an evidence of their social position and their business success. They naturally want something they can show off to their neighbors, to show how smart and up-to-date they are. For this reason they are usually terrifically "style conscious" — style, that is, in the sense of fashion rather than "style" in a purist esthetic sense. In this lies the hope of the thoughtful creative architect, the modern architect, for as time goes on and the social and financial leaders in the community become more and more convinced that "it is smart to be modern," by just so much does the sincere architect's task become easier in developing advanced designs.

On the other hand, the client's proclivity to be one of the herd, to follow the leader, may be the *bête noir* of the architect, frustrating his attempts to produce a more rational design, when the pace-setters seek social prestige and established security by harking back to feudal forms or to assumed ancestral homes.

This client gregariousness accounts for the fact that neighborhoods grow predominantly Colonial, Spanish, or Ye Olde English, for a client often will put up with both inconvenience and exorbitant expense in order to be in the style swim of the social group which he aspires to emulate. "Style," or rather "fashion," seeps downward, which, of course, accounts for row after row of pseudo-English or pseudo-Colonial small houses.

The hope for the future of domestic architecture is this very potent motivating force, the emulation of those who are looked up to as leaders in the community. The desire on the part of these leaders to assert their leadership by being different and advanced is another hopeful factor, for this desire to set the pace, to establish the fashion, gives the architect his greatest opportunity for creating houses nearer to his heart's desire. "*The pertinacity with which every newly built house, if in any respect out of the common way, is discussed, the curiosity shown by the strollers around it during the progress of the works, and very speedily the avidity with which any scrap or morsel of peculiar detail is seized upon and copied, are proofs of the awakened interest it excites.*"

The public is being conditioned to new concepts of architecture, or to new emphasis at least on certain aspects of domestic architecture, through the printed word and the public press. Only a few years ago the consumer home magazines were highly critical of — and even ridiculed — the early efforts to create a more rational architecture. Today they vie with one another to show with adulation, though not always with discrimination, the latest works of the most advanced designers. As this popular movement grows, we believe that there will be more critical analysis of these houses, more help to the prospective client in separating the wheat from the chaff, more encouragement to the innovations and ideas that will prove sound.

Drawing by M. Peter Piening

Photo Courtesy of Metropolitan Museum

Client predilections are based on a complex of emotional conditioning,

"The analytical sentiment of this age will, before very long, lead it to reject all that has not a purpose and a use — a purpose of utility, a use in aiding harmony of effect; beauty only will be valued — it will only be considered as such when so produced, and out of this sturdy determination to throw aside all not marking a meaning and intention, will result a grand, united, all-pervading influence, which at no very distant time will develop itself into a form and style. How — the Giver of Genius best can show! But it will come, depend upon it; nor will silly, tricksied imitations, and obstinate adherence to unmeaning forms long delay it."

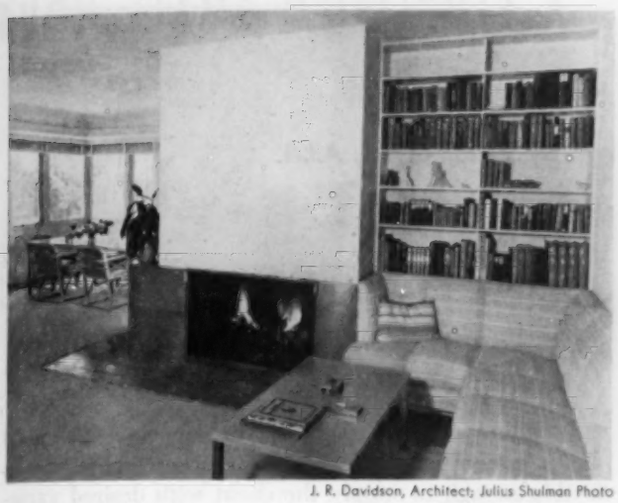
What will prove sound — useful, economical, convenient, pleasing — in the long run, time alone will tell, for judgments on the part of protagonist or public may be prejudiced by intellectual over-emphasis on one hand or by conditioned emotional responses on the other. Reason and emotion both enter into judgments and both must be taken into account.

Now we are in an age of especially active experimentation, of efforts to improve our personal environment, of trial and error, and our judgments change with the times. Our developing contemporary style may well follow the course suggested by Pope for something quite different —

> . . . is a monster of so frightful mien,
> As to be hated needs but be seen;
> Yet seen too oft, familiar with her face,
> We first endure, then pity, then embrace.

What shall we embrace in house design? What are the criteria in judging a house? For a house can be judged from many points of view depending largely on the judge — and on the times. The home owner himself, or herself, may judge on different bases at different times and under different circumstances. He may judge the house as a home — an environment conducive to the happiness of the family. He may judge it as a financial investment, or as a badge of social standing. He may praise it for its convenient plan, condemn it for its costly upkeep

Home designs may stem from mistaken imitation of bygone styles, from



J. R. Davidson, Architect; Julius Shulman Photo

various social urges, and rational considerations of their ways of life

and repair. The engineer might judge it on structural and mechanical soundness or economy of means-to-ends; the banker, on quick and high resale value; the architect — depending on his age, training and previous condition of servitude — on its organic functioning, or on the refinement of its period detail. Nor are all architects entirely free from a tendency to confuse stylistic forms with efficient functioning. Non-functional planning, inconvenient or wasteful space arrangement, can be given the outward forms of functional architecture. This is especially true as "Modern" becomes a style and its forms can be imitated without understanding the philosophy and logic which gave rise to these forms. Unfortunately, it is easier to copy a cliché than to think a problem through.

To return to the possibility of establishing criteria for judging a house — or houses for humans — of establishing standards of comparative judgment (albeit those standards must be raised as advances are inevitably made) it might be well to list again the functions of the house, thus to provide a scorecard of facilities, provisions, or characteristics that are essential or desirable.

The house should be designed to provide — efficiently, economically and attractively — adequate enclosed, semi-enclosed and open space so planned as to accommodate the persons and paraphernalia involved in all the activities of the family, individually and collectively. This includes:

1. Protection from the elements — from rain, storm, wind, fire, dust and changes in temperature.
2. Safety of persons and personal property from harm or loss by persons, animals or insects.
3. Privacy from intrusion by unwanted persons, sights or sounds. Individual privacy for each person.
4. Convenience in space arrangement, furnishing and equipment, for ease in use and to save time, steps, work; minimizing costs of operation and repair.
5. Flexibility. Adaptability to changing needs and uses.
6. Abundance of air, light (natural and artificial) and sunshine, with devices for their selective control.
7. Temperature and humidity control.
8. Sound control.
9. Complete sanitary facilities.
10. Facilities for rest, recreation, exercise, and cultural and social activities.
11. Facilities for food preservation, storage, preparation and consumption.
12. Means of dirt, dust, and refuse elimination.
13. Means of communication within and without.
14. Esthetic appeal — that elusive, hard-to-define character (beauty, if you will) that produces in the beholder and user a spiritual lift, a sense of well-being, of appropriateness of form, color and materials to their purposes.

Let our judgment of houses for humans be based on these 14 points.

ostentatious misplaced virtuosity, or from rational creative planning

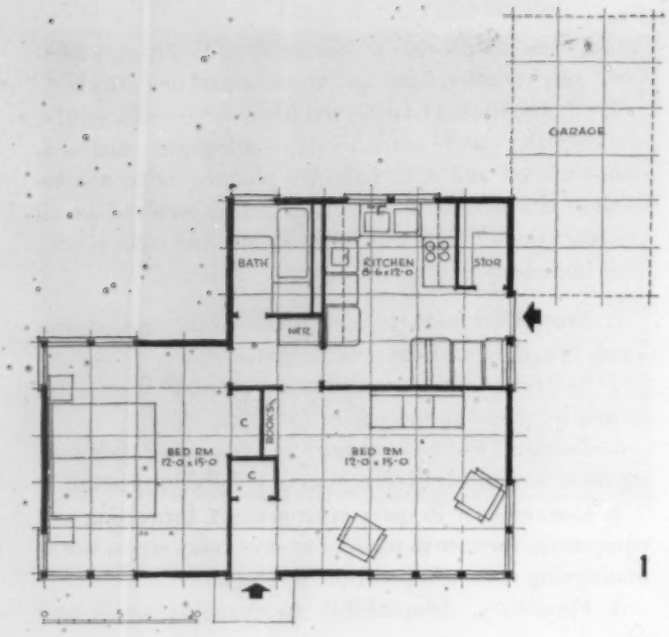
G. F. Keck, Architect; Hedrich-Blessing Photo

"Constructive skill in building and ingenious adaptation of mechanical contrivances to meet the wants of domestic life, are the grand distinctive excellencies of this age; in no period of artistic history have we evidences of construction being so well understood, or of the use of materials so various and so scientifically adapted to their several purposes, as at the present time. It is the knowledge of the principles of design — the art *of architecture — that seems wanting. . . . Yet we have construction superiority on our side; we have better tools to work with; more varied materials; scientific and reliable calculations upon which to base their proportions for purposes of strength and resistance, and the examples of by-gone beauty to work upon — surely, with all these advantages it cannot be that the dawn of a better intelligence will be long withheld!"*

Strange as it may seem, the quoted paragraphs in italics were not written today — they were written by Gervase Wheeler, architect, in RURAL HOMES, published by Charles Scribner in 1852. It may be that from time immemorial houses have been for humans.

A SIMPLIFIED SMALL HOUSE

By Victor Civkin, A.I.A.



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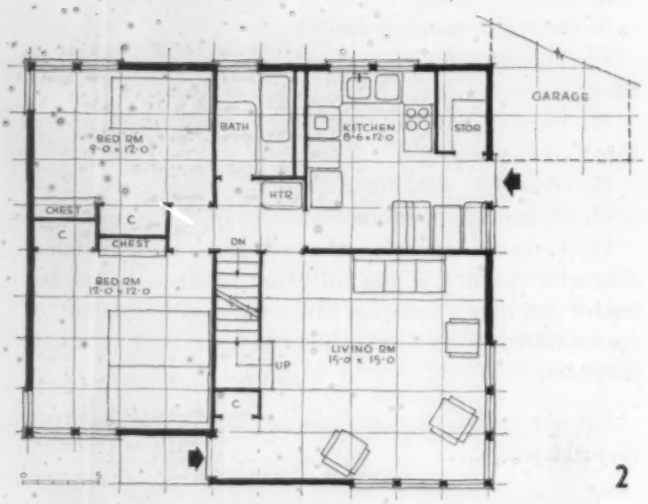

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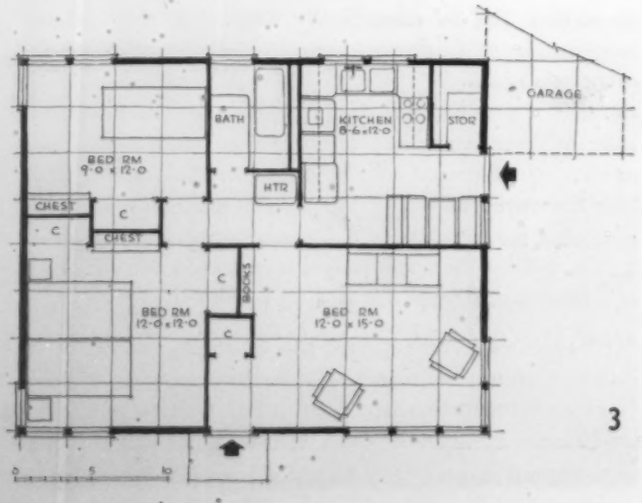

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THE main idea of this study was to develop some kind of a system of small house planning which could be flexible enough to supply the client with desired variations and still have correlated designs. This system could be used by the designing architect engaged in developing communities of houses for sale or rent. The architect, using some system like this, could afford to supply the builder with variation of plans without excessive drafting, thus removing the builder's temptation to design the variations by himself.

The modulus can be of 36 in. or 39 in. or 4 ft. 0 in. Houses with one bedroom, two bedrooms, or three bedrooms on one floor are shown. They can be designed with or without a basement. Provision for additional bedrooms on the second floor can be made, and garages would be optional. In all variations, the kitchens and the bathrooms are identical. It seems to me that there is no reason whatsoever why small houses in this class should have variation in kitchens, bathrooms, or heating.

The plans are of different houses and should not be misconstrued as showing or recommending making additions to the house after it is built.

STANDARD PLANS WITH STANDARD VARIATIONS

1. The minimum one-bedroom house showing standardized room elements and possible garage location

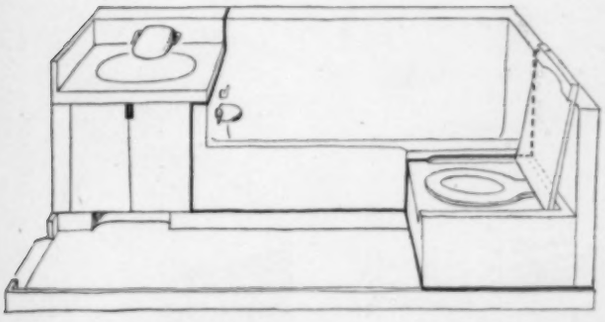
2. A two-bedroom house having the standard bath, kitchen, and storage elements, but a living room enlarged by one module. Stairs lead up to additional bedrooms and down to basement storage or recreation rooms. Standardized chest and wardrobe units separate the bedrooms

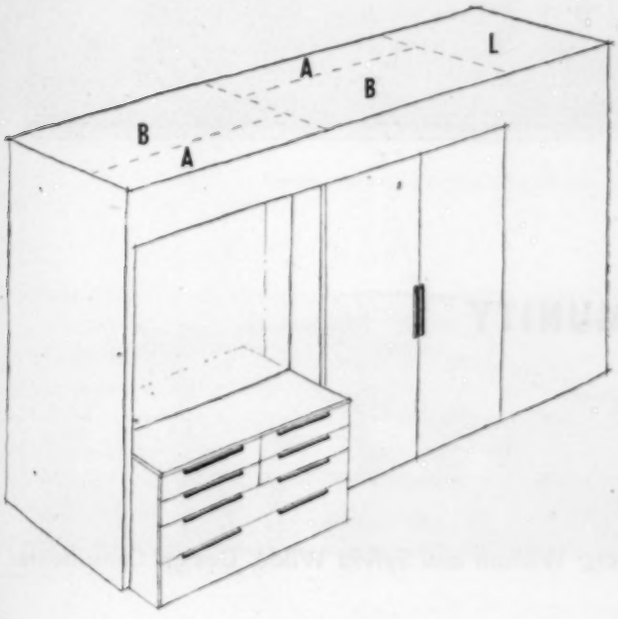
3. A two-bedroom house with smaller living room, without attic or cellar

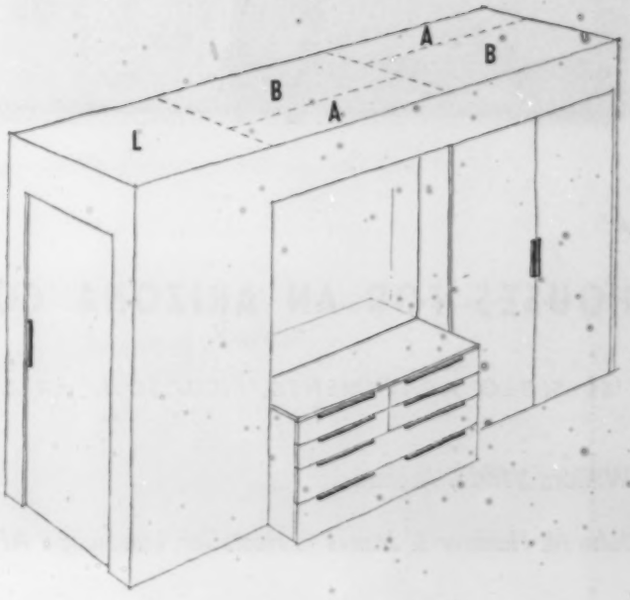
4. Opposite page: a three-bedroom house with living room similar to that of No. 2 and with standard variations of prefabricated chest and closet units

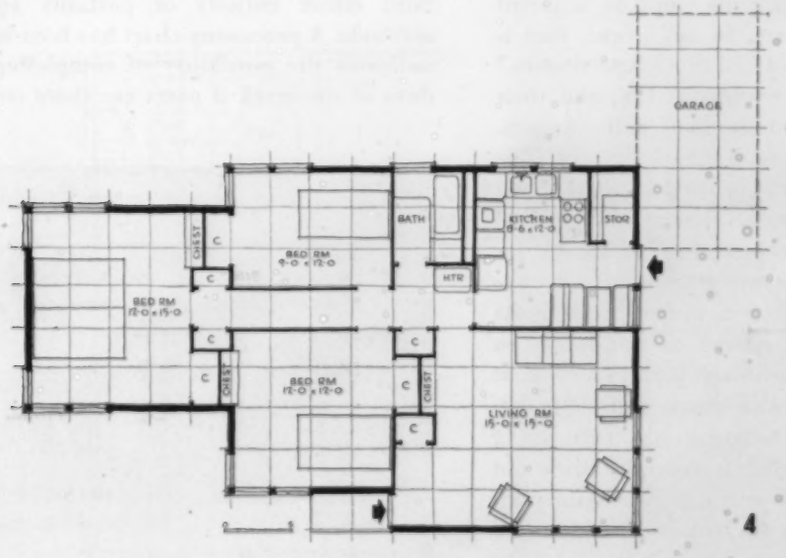
PLANNING SYSTEM

Closets, particularly in plastered houses, may cost as much as a room itself. There is no reason why a closet has to have 5½ in. walls plastered on both sides and trimmed with a base and casing around the doors, so this particular system contemplates factory-made closets of standardized size and shape comprising chest and mirror elements (A), hanging and shelf space (B), and linen or coat element (L), independent of the house structure. Sketch of a model for a three-unit prefabricated bathroom suitable for standardized houses is shown at the left.









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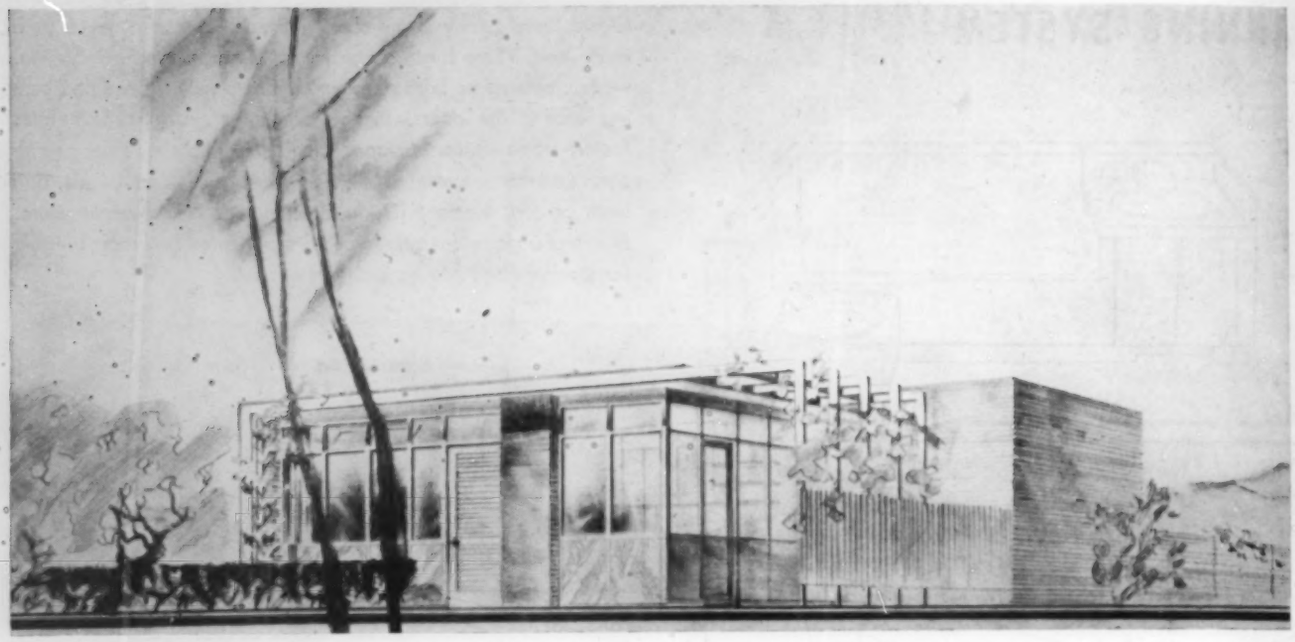


HOUSES FOR AN ARIZONA COMMUNITY

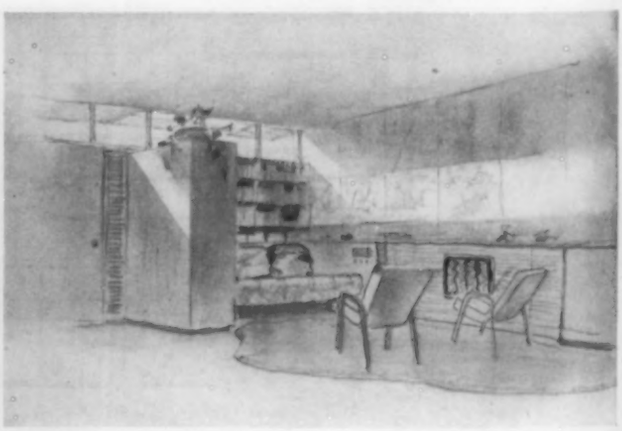
"EL SIGLO APARTMENTS," TUCSON, ARIZONA

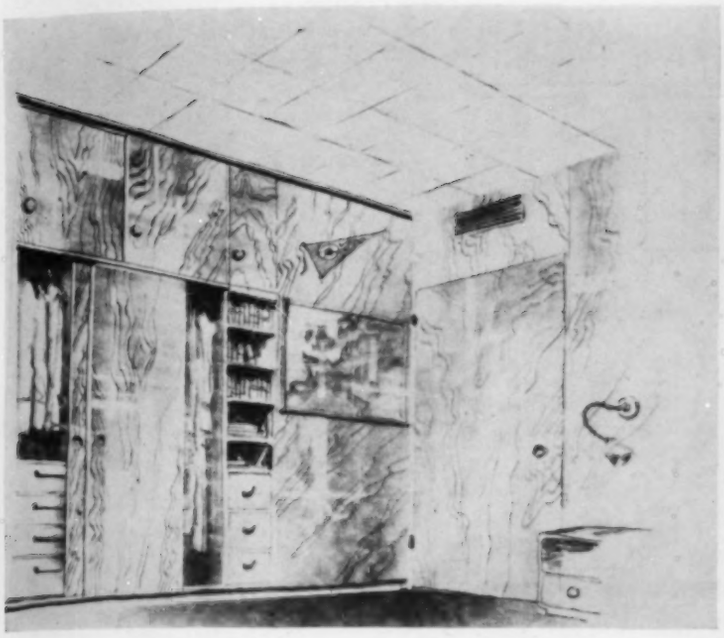
William Wilde, Architect

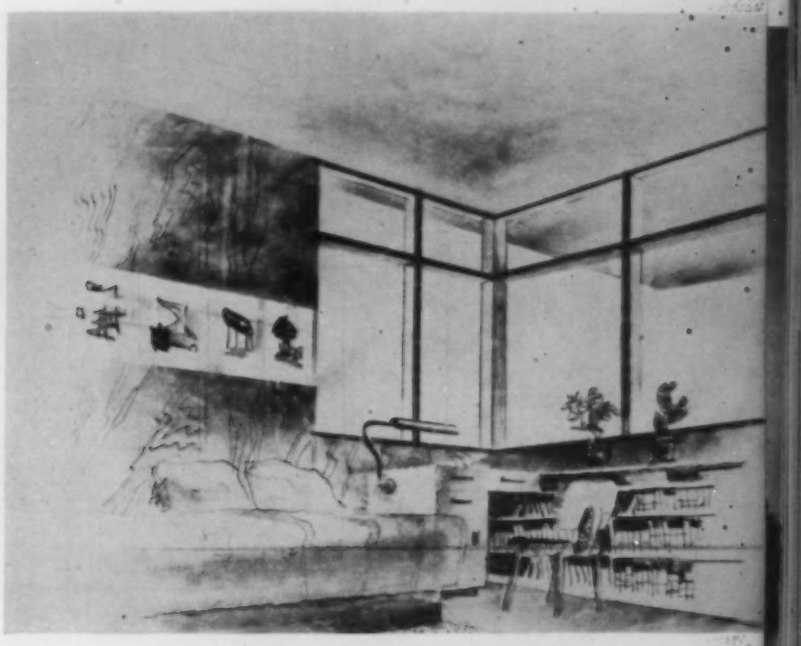
John M. Harlow & James F. Hosteller, Landscape Architects; William and Sylvia Wilde, Design Consultants

An apartment might be defined as a dwelling unit on one floor, and while we usually envision the apartment house as a many-storied structure with similar apartments one over the other on successive floors, there is no reason why apartments can't be adjacent to one another on ground level. In any event, that is the reasoning of the owners of "El Siglo Apartments," the Oshrin Building and Development Co., and their designers. These standardized dwelling units, houses, or apartments, as you will, are designed for rent. The units, having one, two, or three bedrooms, are planned for convenient and economical living, making the maximum use of space and providing flexibility for varied activities within the space limitations. An unusual number of built-in features makes these units livable with a minimum of furniture, as the details on page 127 so clearly show. (The owners plan to rent these units furnished.) Wardrobe and closet space are arranged with special care. Designing has been on a modular grid pattern of 2 ft. 8 in. squares, for brick and panel construction. The floor is a concrete slab, reinforced with wire mesh, over a gravel base. Wooden roof panels are supported by walls or steel girders, and are covered with insulation board and built-up roofing.

The designers' objective has been to develop a plan which would lend itself to the standardization of all or many of its component parts so that the units could be built either entirely or partially by prefabrication methods. A processing chart has been worked out which indicates the possibility of completing a house in 14 days of site work if parts are there on schedule.

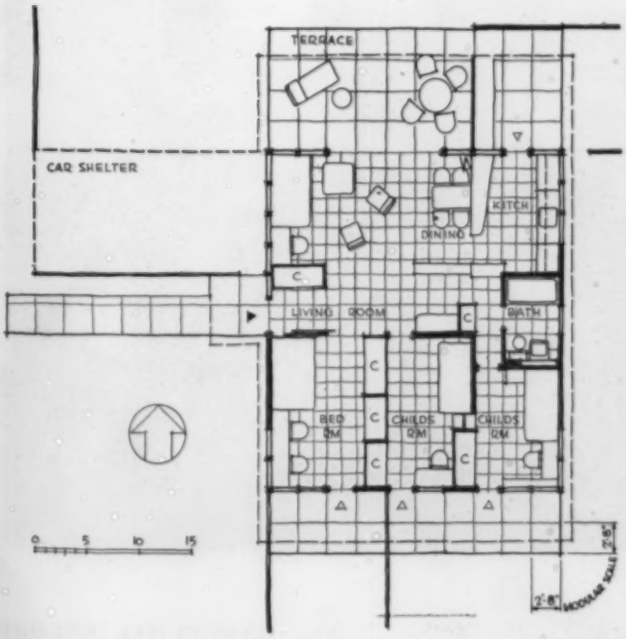


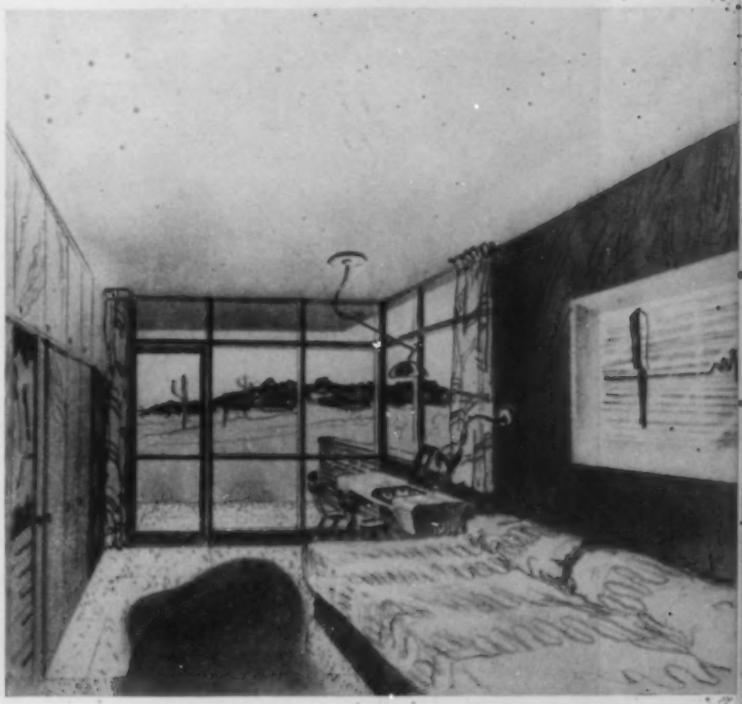


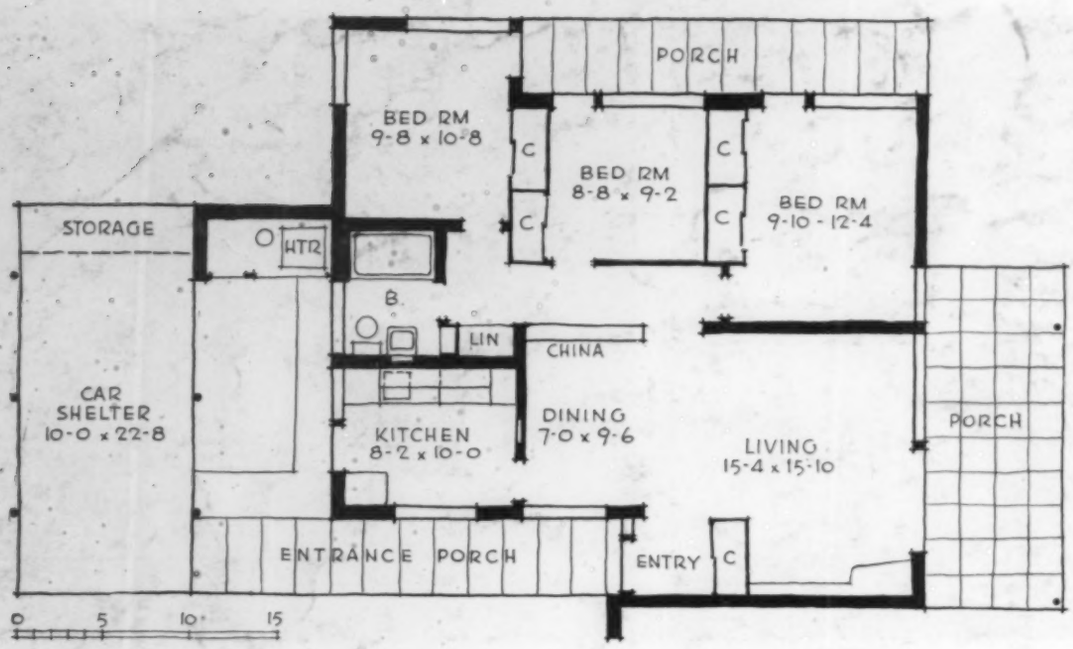


Perspectives of children's bedrooms showing wardrobe walls, bed, desk and bookcases

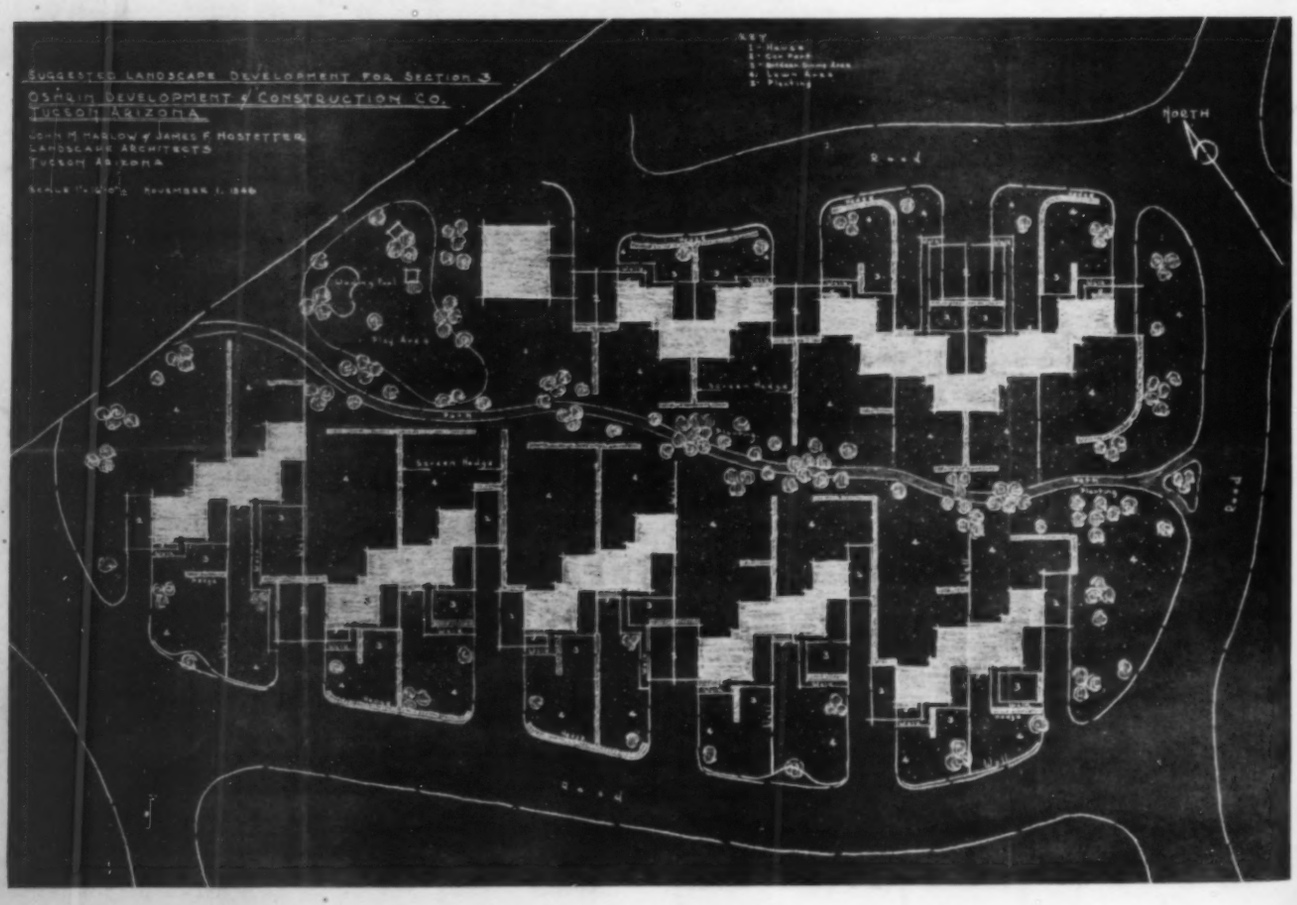
Above: perspective of a three-bedroom unit. Below: plan of a basic three-bedroom unit. Right: perspective of bedroom. Opposite page: sketch of living room showing electric radiant heater



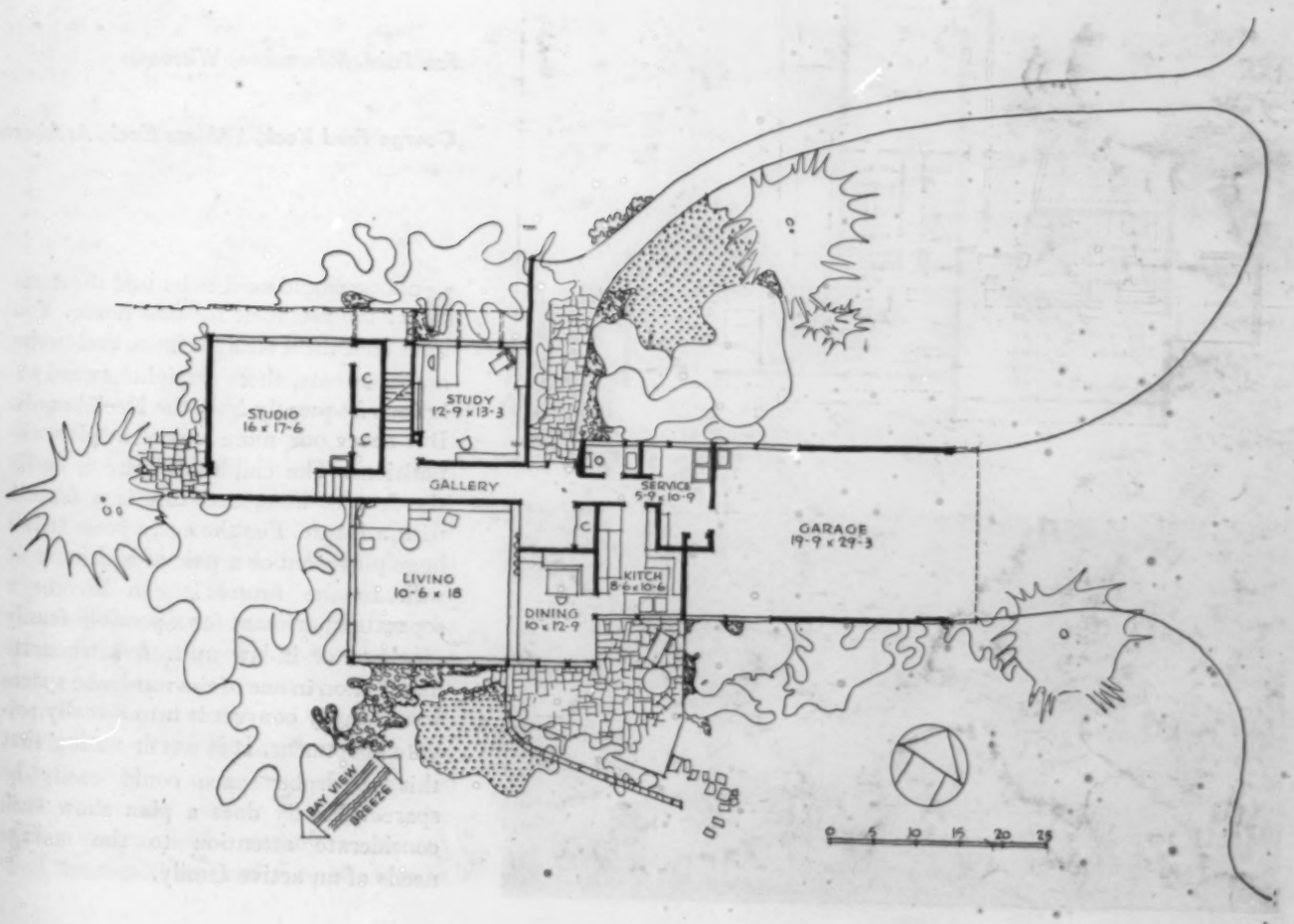


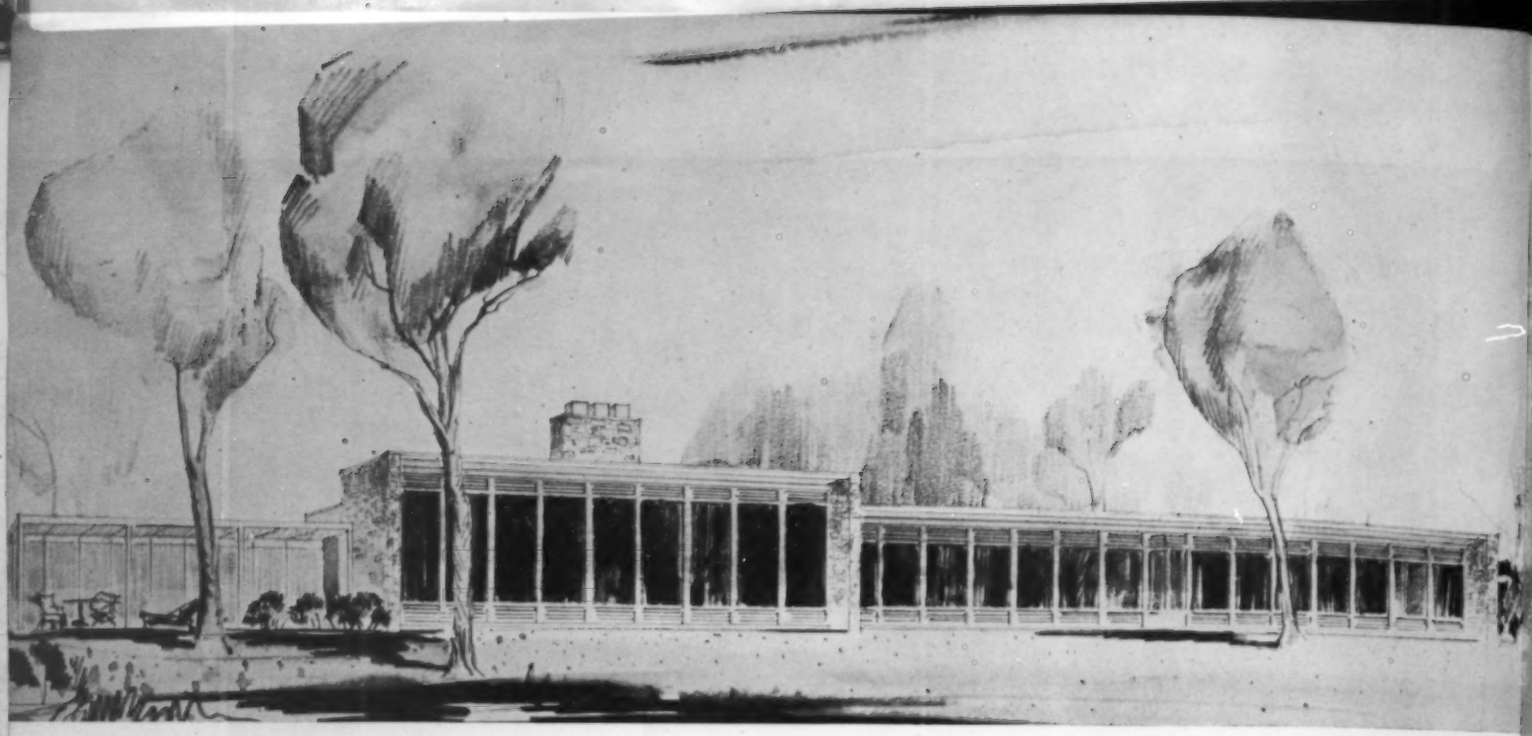


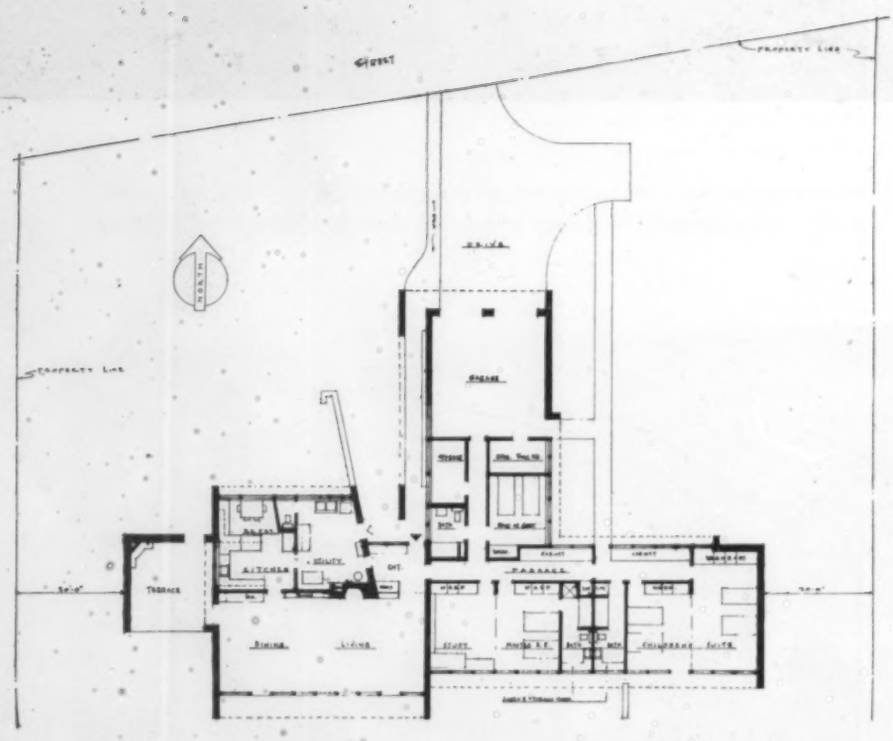
Above: revised plan of a three-bedroom unit designed to meet FHA requirements. Below: preliminary landscape plan showing possibilities of staggered units to avoid monotony

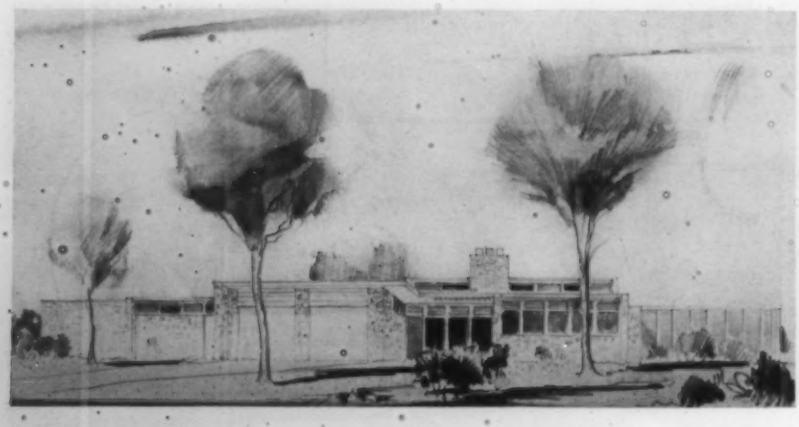


Bedrooms and bathrooms (second floor plan omitted) are arranged in two suites, which include dressing facilities. An open deck, accessible to both, has been placed on the upper level, behind a wind screen. The gallery connecting separate units has soffit lighting









STRAIGHT LINES OR

HOUSE FOR DR. AND MRS. IRVING I. COWAN

Fox Point, Milwaukee, Wisconsin

George Fred Keck, William Keck, Architects

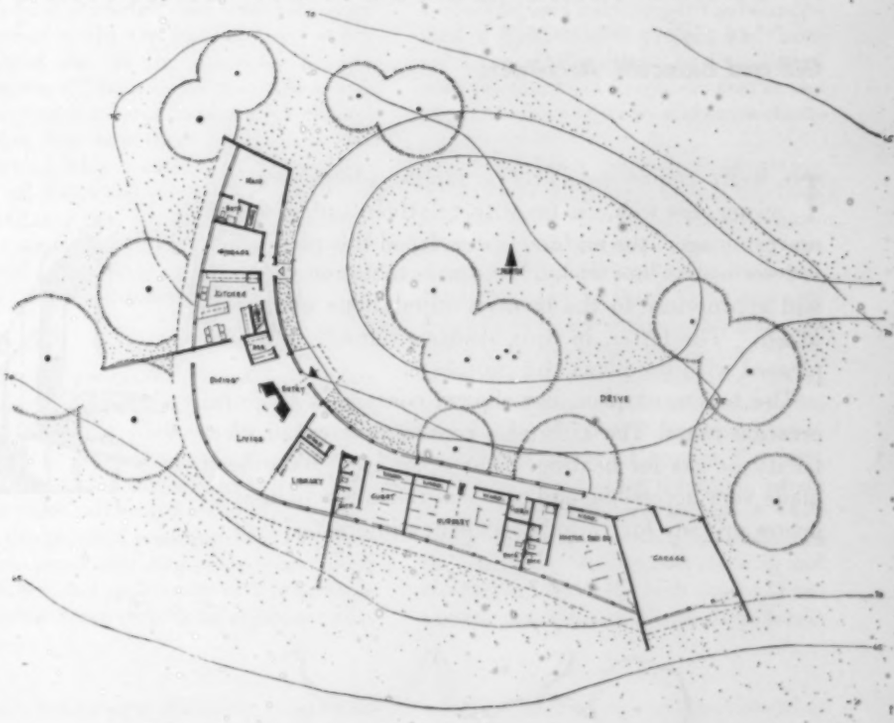
NOBODY would need to be told the name of the architect for this house. You have seen these straight lines, these solar arrangements, these straightforward solutions frequently from the Keck boards. But never one more logical in plan dispositions. The children's suite is easily the feature here, and this is a feature with a future. For the early years it is a huge playroom or a pair of bedrooms at will. In the future it can become a separate apartment for a possible family off-shoot or in-law unit. A kitchenette installation in one of the wardrobe spaces would easily convert it into a really private apartment. It is worth noting that this wardrobe space could easily be spared. Rarely does a plan show such considerate attention to the storage needs of an active family.

PANORAMIC CURVES

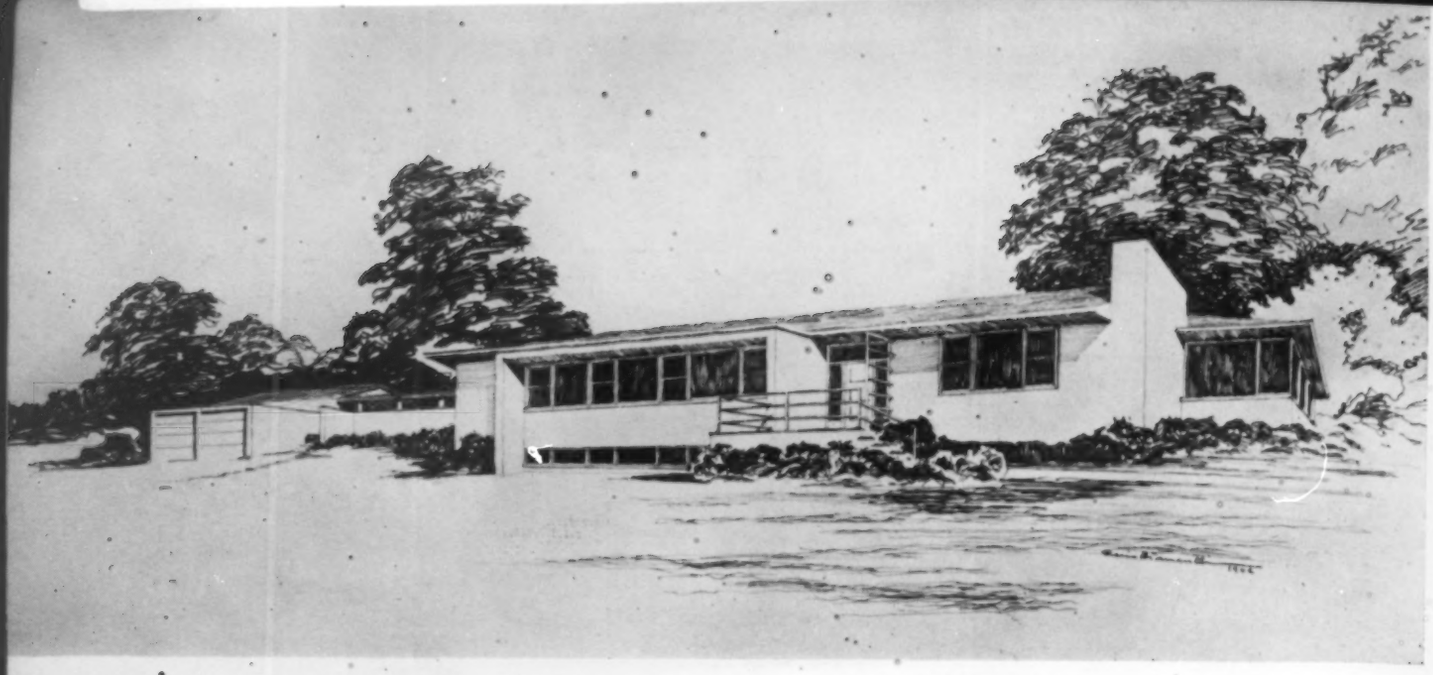
HOUSE FOR MR. AND MRS. JERROLD T. KELLY

Barrington, Illinois

George Fred Keck, William Keck, Architects



WHEN we talked with Keck about this plan we asked him a leading question — how would he describe its functional aspects. "I wouldn't describe it primarily in those terms," he shot back, "I drew it that way because I liked it, and what's more the clients liked it too!" Having got that straight, we could sit back to admire the forthright way he had developed the view toward the "Lake of the Woods," which is just beyond the lower contour line on the plan. All living, family and guest areas enjoy the lake view, with service areas completing a graceful and by no means whimsical curve. The orientation of the curve, by the way, is just as happy for the southwest winter sunshine. The flying screens add a feeling of privacy and functional separation to the façade.

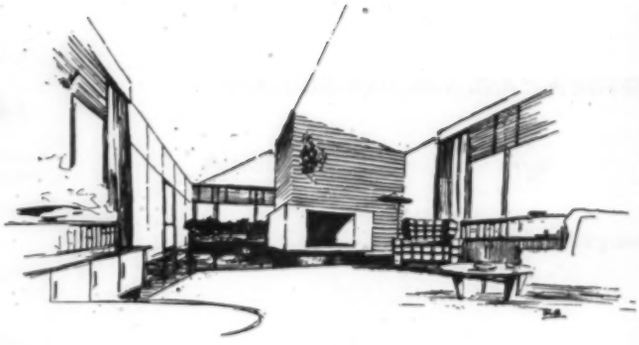


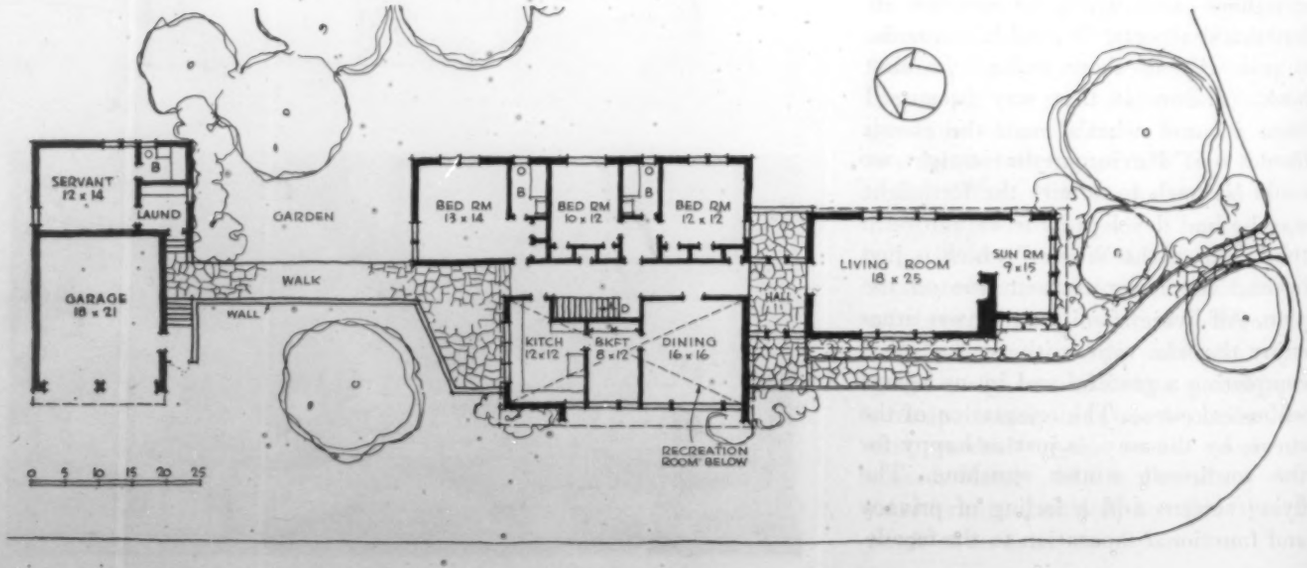
A THREE-PART HOUSE FOR CHATTANOOGA

Gill and Bianculli, Architects

TO MEET requirements of a family comprising the owner, his wife, "a favorite relative, and a son of marrying age," the architects developed this plan which is described as "not tricky, but comfortable and spacious, and appropriate to the owner's stipulations and mode of life." The latter, in turn, declares himself very well pleased with the plans and prospects.

The basement plan, not shown, contains a large recreation room. The architects contemplate either electricity or gas for heating. "The open areas have been made very accessible, and care was taken throughout to insure privacy for various occupancy interests."





ADVANCES IN HOUSE HEATING

By Clifford Strock*

AT A heating conference a few years ago an engineer listed the requirements of the ideal house heating system as one with features which ran somewhat as follows: first cost, very low; fuel cost, exceptionally low; cleanliness, practically 100 per cent; attention required, none; and so on — including a floor-to-ceiling temperature difference of less than one degree. There are combinations of fuels and equipment which will meet some of these specifications; there is, obviously, none which meets them all, and an annoying feature of the whole situation is that the closer one approaches the ideal in physical respects, the higher becomes either first cost or operating cost, or both.

On the other hand, the present outlook is far from discouraging. The predictions of wonders to come in the postwar world have actually materialized in heating to a more than fair extent.

FUELS

There is almost an infinite variety of combinations of fuel-burning or energy-consuming devices, methods of distribution and types of controls available to the house heating designer to the point where the overall subject is difficult to classify for purposes of discussion and appraisal. A logical beginning is with the fuel or energy sources employed, and we will examine this matter first, but return to it later as the occasion arises.

The fuel situation changed sharply during the war and the relative situation among the various fuels is quite different in 1947 than it was in 1940. Coal, due to the increase in price caused largely by higher wages for the miners and to a lesser extent to freight rate rises, is now in a somewhat less advantageous position as a house heating fuel than formerly. It is probable that within the next year or so gas will be more expensive than today, as one after another of the utility companies obtains permission from public service commissions to advance rates. The picture is even more confused with respect to oil, since there is no general agreement about its future availability and price. An oil shortage has been predicted year after year since the first world war, but has never materialized due to the discovery of new sources. Oil men claim that this is still the case, but some independent experts argue that now there is real cause for alarm. If this is true and we do become an oil importing nation, it would seem inevitable that oil costs would increase, but since there is as yet no conclusive proof of either argument there simply isn't any conclusion to be reached.

COAL

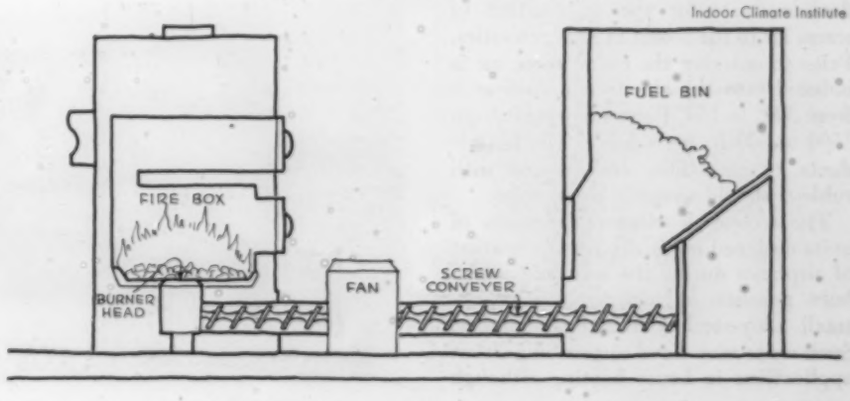
In the meantime two developments seem to hold considerable promise for the future. In Alabama the Bureau of Mines is conducting an experiment in burning coal in the mine so as to produce gas which can be utilized locally or piped to the point of consumption. The Russians previously had done work along this line and apparently with reasonable success. Since there is no argument that our coal reserves are enormous, and since gas is a clean and efficient fuel to handle, there is much to be gained from this research.

Still more recently the Pittsburgh Consolidation Coal Company announced that a $120,000,000 project had been started near Pittsburgh in cooperation with Standard Oil to convert coal at the mine into gas and oil by elaborate chemical processes.

The principal traditional advantage of coal as a house heating fuel has been its low price. Its disadvantages have been the dirt involved, including the ashes, and its bulk and space consumption in storage. In many areas coal still enjoys a price advantage and where this is the case and where the income of the home owner is limited, a hand- or stoker-fired installation is still very much in the picture. In addition, a frequently overlooked advantage of coal is the heat available when the fire is banked, which is very often sufficient to reduce what would otherwise be a damp condition in the basement. Modern coal cleaning and treating methods, the high degree of automatic operation of the modern stoker,

Stoker-fed furnace. Automatic firing results not merely in labor savings and greater cleanliness, but also in better utilization of fuel. Coal and air supply are coordinated and adjusted for most efficient combustion under automatic thermostatic control

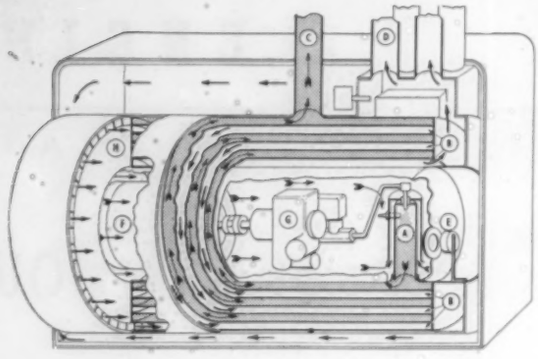
Indoor Climate Institute

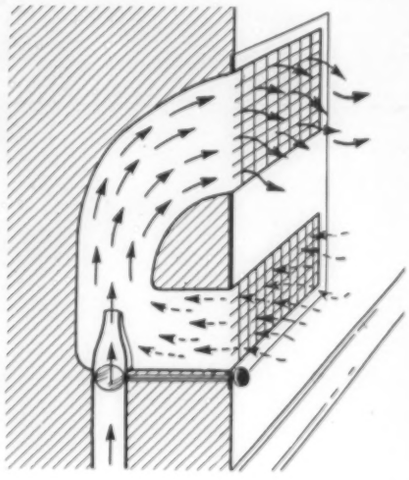


*Editor, Heating and Ventilating.

A = Combustion Chamber
B = Spiral Heat Exchanger
C = To Flue
D = Warm-Air Outlets
E = Electric Eye for Flame Safety Control
F = Motor
G = Fuel Pump
H = Blower

Jet-Heet, Inc.





Above: Compact furnace provides warm-air heating for medium-size house by means of high-pressure atomizing oil burner and small flexible tubes to room outlets. Right: Heated air is distributed at high velocity to specially designed registers, into which room air is drawn to reduce velocity and lower incoming air temperature

including the bin-feed feature and ash removal equipment, are such that coal is still the principal house heating fuel.

OIL

The present day oil burner is the result of experience over a period of 25 years and is giving a high degree of satisfaction in several million installations. War-born experience in corollary arts is now being applied further to improve the thermal efficiency of oil burners. Two developments especially are worth noting.

The first is the application of research on jet propulsion to oil-burning problems. The important feature of a device first shown at the recent heating and ventilating show is the burning of oil under high pressure in a 2½- by 5-in. combustion chamber. The fuel is said to be completely burned with a considerable supply of excess air without noise by a properly controlled turbulent mixing of the air and oil. High velocities of the products of combustion in the heat exchanger are claimed to account for high efficiencies and smallness of size of the unit, the efficiencies reported being from 93 to 95 per cent. The complete system has an additional feature not related specifically to the fuel but of great interest, namely the use of small diameter flexible ducts for the distribution of warm air to the rooms at high velocities. Prior to entering the room, room air is induced into the air stream, cooling it from 300° to 150° F. and slowing it from 1500 to 300 ft. per minute. The flexible ducts, of glass fiber and bonded with rubber, should simplify installation.

The second development consists of units designed originally for the heating of airplanes during the war, and which burn gasoline at high efficiency in a small alloy-steel combustion chamber. Such units may have certain important applications in house heating although it is problematical that the high-cost fuel can be employed competitively with heating oil in spite of a high efficiency. Perhaps more important is the adaptation of the general idea to a gas-burning (manufactured, natural, mixed or bottled) unit of small size — about that of a suitcase — placed at the baseboard and discharging air into the room and intended to heat that room and perhaps also a small adjacent room. Small pipes discharge products of combustion to the outside. Advantages include the absence of piping in the basement.

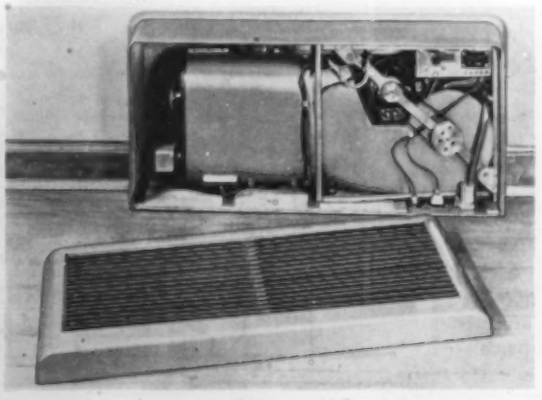
GAS

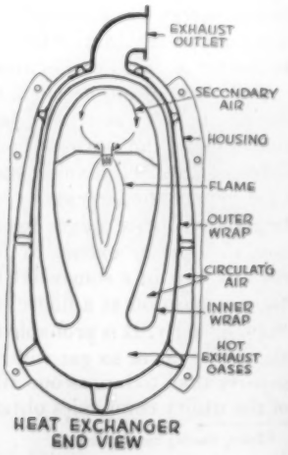
Gas more nearly approaches the ideal fuel than either oil or coal in many respects, but it is not without disadvantages. The cost in natural-gas regions is not high, but heavy demands in these regions on cold days have caused some anxious periods this past winter. Manufactured gas, although high in cost, is not necessarily the highest in overall cost. The lack of moving parts reduces servicing which sometimes annually totals appreciable sums with some fuels. In connection with overall costs, the fuel cost estimate for a given project must take into account all uses of gas. For example, if gas is to be used for cooking, that must be included in the estimate, for the cooking gas will be obtained at a low rate if gas is used for house heating, but at a high rate if not. This, together with consideration of servicing costs, may alter the relative cost setup in favor of gas.

On the other hand, estimates based on present rate schedules may be dangerous. A pertinent question to ask is whether the gas utility has made or contemplates making a rate revision. The heavy demand for gas during the past two years has forced certain utilities to refuse house heating loads from new customers in certain areas. Therefore,

Left: This gas-burning unit is a separate small furnace that can be hidden away in each zone of the house to heat that particular zone, with thermostatic control and modulated flow of heat. Exhaust gases are vented by small pipes to outside the house. Right: Cross-section of heat exchanger and sealed combustion chamber

Stewart-Warner Corp.





HEAT EXCHANGER END VIEW

determine whether the project is on an already heavily loaded line and if so what prospects are for additional gas producing facilities.

ELECTRICITY

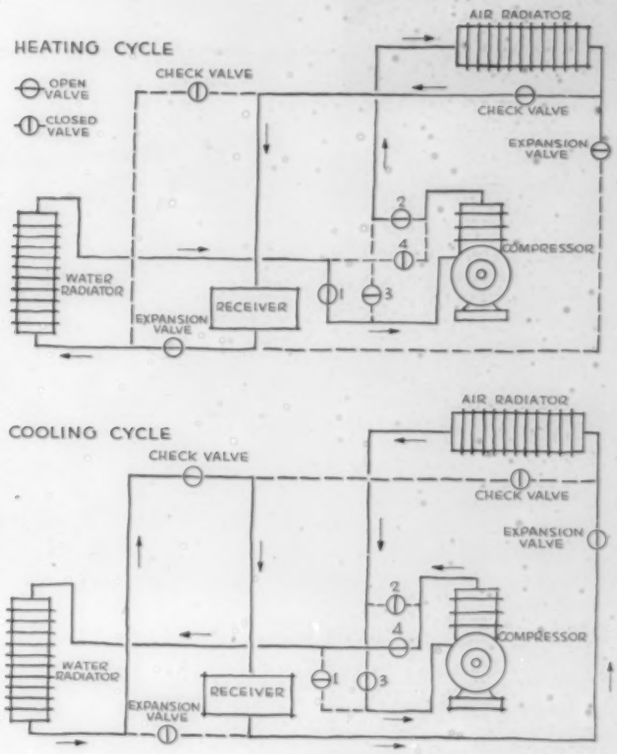
The ideal source of energy for house heating would be electricity if it were available at reasonable cost. For the vast majority of projects and in most areas it is not yet so available. It is available in certain areas where government-built hydro-electric projects have been developed, such as in the Bonneville region in the Pacific Northwest and in the TVA region in the South. There are two special cases, however, where electric energy for house heating can be considered in other regions: the first is where year round air conditioning is contemplated, the second where off-peak rates are available for thermal storage. To the writer's knowledge, there are no private utility-served areas with such rates, but this is mentioned because of future possibilities. The former is already a reality with the heat pump.

HEAT PUMP

The heat pump was for many years an engineering curiosity. Almost a century ago it was demonstrated that a refrigerating machine could be used as a source of heat, with the heat extracted from the condenser and with the evaporator drawing heat from the air, ground or water at a low temperature. The machine would raise the potential of the heat, or pump it to a higher level — hence its name. To put the matter into more understandable terms, there is heat in the ground even at 15° F. An evaporator placed in the ground thus taps a quantity of heat which is made available at the condenser and since the latter is all that is actually paid for, the heat pump can produce from three to five times as much heat at the condenser as was put into the system in the form of electric energy. This is equivalent to a rate from one fifth to one third that which would occur if the same rate were applied to resistance heating.

A refrigerating machine is a reasonably costly piece of equipment, and even with the aforementioned advantage would not be economical in first cost from a strictly heating standpoint. However, where a refrigerating machine is needed for summer air conditioning then the dual purpose makes year-'round use of the machine economically feasible.

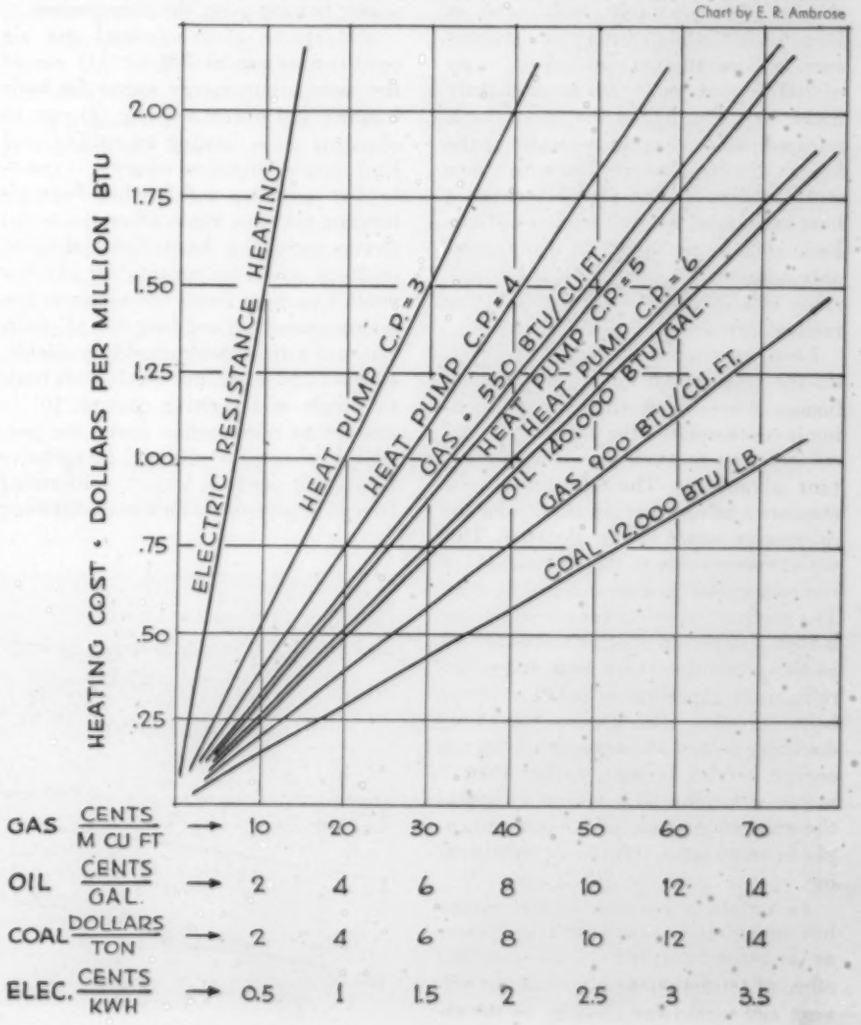
Advantages of a heat pump include: (1) compactness, since the combination of heating and cooling in one system results in a minimum use of space; (2) flexibility of arrangement, since the location of the equipment is not fixed and it can be located on the roof, in the basement or in any part of the house; and (3) concentration of utility service by combining heating and cooling require-



Above: Schematic diagram of one arrangement of water-to-air heat pump with four solenoid valves (positions reversed when season changes). Well water is source of heat

Below: Comparative costs of various methods of heating, including heat pumps of various coefficients of performance (C.P.): 60 per cent efficiency assumed for oil, coal, and gas.

Chart by E. R. Ambrose


HEATING COST • DOLLARS PER MILLION BTU
2.00
1.75
1.50
1.25
1.00
.75
.50
.25
ELECTRIC RESISTANCE HEATING
HEAT PUMP C.P.=3
HEAT PUMP C.P.=4
GAS • 550 BTU/CU.FT.
HEAT PUMP C.P.=5
HEAT PUMP C.P.=6
OIL 140,000 BTU/GAL.
GAS 900 BTU/CU.FT.
COAL 12,000 BTU/LB
GAS CENTS / M CU FT → 10 20 30 40 50 60 70
OIL CENTS / GAL. → 2 4 6 8 10 12 14
COAL DOLLARS / TON → 2 4 6 8 10 12 14
ELEC. CENTS / KWH → 0.5 1 1.5 2 2.5 3 3.5

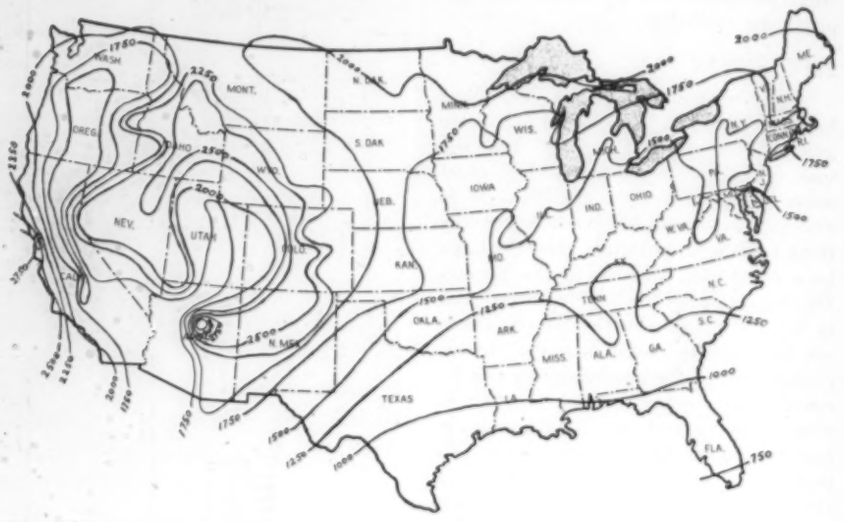
ments into a year-'round system arranged to operate on a single electric utility service. Thus the need for any other fuel is eliminated.

The heat pump is past the theory stage and has been actually applied in fair numbers, some as many as 15 years ago. Two manufacturers are in production, and a third expects to be in production by fall. Research is quite active, with several universities and foundations investigating various phases of the matter, including that of the best source of heat and the means of tapping it.

Load factor is always a problem of any public utility, and with any function having a low annual load factor, such as heating, the load is not looked on with too much enthusiasm by the utility company. For this reason, probably more than any other, electric utilities have never done too much about the house heating business. Electrothermal storage does have possibilities in correcting this situation. Most utilities have considerable excess capacity at night, and if the electric energy generated during those hours can be stored for use during the day, the daily load factor of the utility is improved. One method of storing the energy is to heat water in large, highly insulated tanks under pressure. One installation involves pressures of 200 lb. and temperatures of slightly under 400°. During the day, the water is released and the heat in the water at the lower pressure converts the water into steam, which is then passed through a heat exchanger. Many variations of this basic idea are possible, and it is reasonably safe to assume that low off-peak rates will be developed to make this method attractive to home owners.

Electricity has no monopoly, however, on the year-'round air conditioning of houses. Where this kind of air conditioning is contemplated the absorption type refrigeration machine has some important advantages. The absorption cycle employs a solvent having affinity for the refrigerant vapor in the absorber. This vessel corresponds to the suction side of the compressor in a mechanical system. The solution of refrigerant and solvent is then pumped to another vessel known as the generator where heat drives the refrigerant vapor out of solution at the higher pressure. This corresponds to the discharge side of a compressor. Thus the energy needed is heat, rather than a motor or turbine. This system is used in the gas refrigerator, and has been applied in a modified form to air conditioning.

Two systems are available. One uses lithium bromide as the solvent and water as the refrigerant; the second, dimethyl ether of tetraethylene glycol at the solvent and methylene chloride as the refrigerant. The former is available in gas-burning units, the latter in either oil or gas, but in larger sizes. In both cases a simple heat exchanger is employed for winter heating using the same burner.



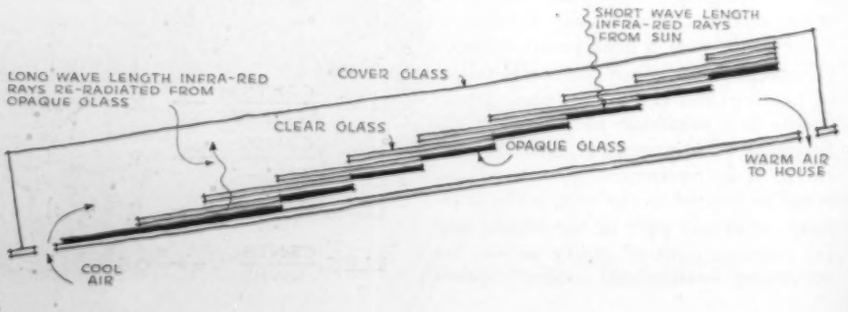
Approximate number of sunny hours during heating season. Dark days in the North are offset by longer season — days when normal mean temperature is 65° F. or below

Advantages of year-'round gas air conditioning are as follows: (1) use of the same prime energy source for both summer and winter seasons; (2) ease of changing from heating to cooling and back again, daily if necessary; (3) quietness of operation and freedom from vibration, features which allow the architect or engineer to locate the equipment in areas otherwise unsuitable; (4) few moving parts, a factor conducive to low maintenance cost and long life; (5) utilization of a dependable, readily available, efficient and clean fuel which lends itself to simple and positive control; (6) in absorption refrigeration units, the possibility of using a safe and inexpensive refrigerant (such as water), conforming to code requirements for air-conditioning system and operating at a vacuum, thereby minimizing the loss of refrigerant; and (7) efficiencies which afford reasonable operating cost.

Along with these physical advantages, there are economic considerations. For example, the summer air-conditioning load normally occurs during the valley period of gas sendout, but in many cases is directly on the peak of the electric distribution systems. In the first case, there is surplus distribution capacity available, while in the latter, added investment in transmission (and in some cases, generating) facilities is required. This may influence the future relative cost of gas and electric energy for air conditioning services. Yet, even at present, gas equipment may be operated at lower cost in many areas.

In the past many building owners have felt justified in paying a premium for gas as fuel for winter heating on the basis of the stated advantages. Costs fre-

Heat trap developed at University of Colorado. Short waves pass through the clear glass and heat the opaque, re-radiating long waves to which clear glass is not transparent


SHORT WAVE LENGTH INFRA-RED RAYS FROM SUN
LONG WAVE LENGTH INFRA-RED RAYS RE-RADIATED FROM OPAQUE GLASS
COVER GLASS
CLEAR GLASS
OPAQUE GLASS
WARM AIR TO HOUSE
COOL AIR

quently were higher than may be expected for the future, because they reflected a good deal of "learning costs" and inexperience in the field as well as expensive hand production at the factory. It is reasonable to believe that, as organized field procedures with trained personnel take the place of inexperience, and mass production replaces handmade methods, substantial reductions in investment costs will be effected.

SOLAR ENERGY

There are a great many ways of utilizing the energy from the sun and most of them have not been explored to any extent at all. During recent years, however, considerable headway has been made along certain lines in determining the results to be expected with certain methods of solar heat utilization, including notable work done at Purdue University, University of Colorado, and Massachusetts Institute of Technology. At the last named institution, an experimental house has a south wall filled with a heat-absorbing liquid in cans. This is a directly opposite type of attack upon the problem from that used in solar houses having wide expanses of glass windows on the south wall shaded from the summer sun by eaves but allowing the sun's rays to enter in the winter. At Purdue, where the latter method is being investigated, two houses, side-by-side and identical except for the ratio of glass to wall area in the south wall, are under test. In the conventional house the ratio is 12 per cent, in the solar house 22½ per cent. The first report of results from these tests showed an average reduction of 9 per cent in degree hours (and consequently 9 per cent in fuel consumption) recorded for the solar as compared with the conventional house.

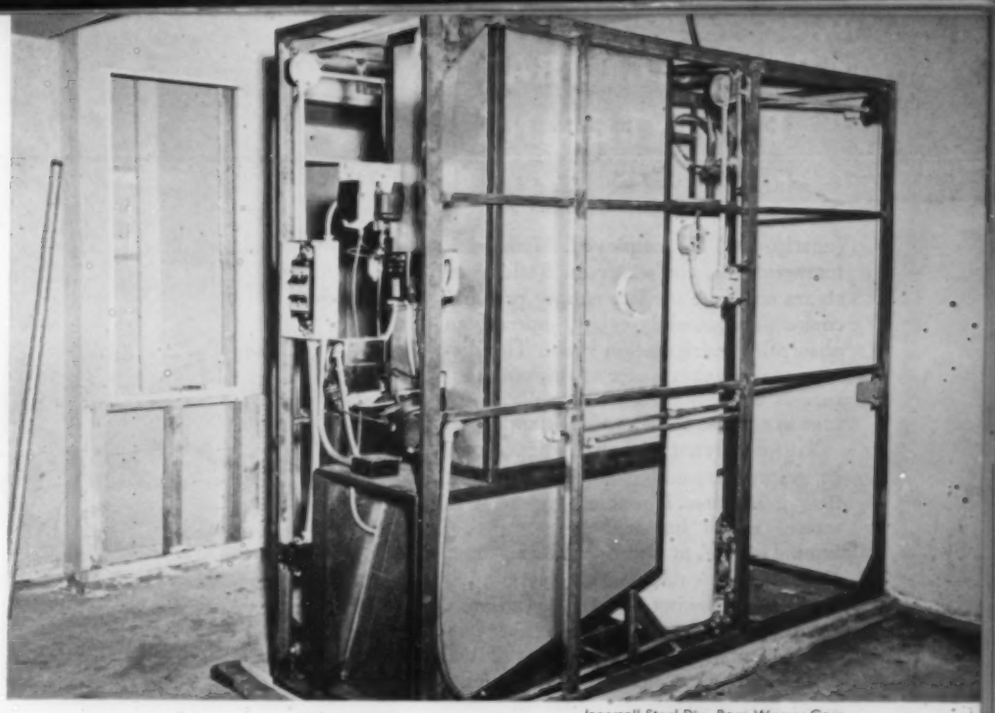
Still another approach is being made at the University of Colorado, where a heat trap was built on the south roof of a house. The sun's rays shine on the trap made of window glass which is transparent to short infra-red rays coming from the sun. After passing through the glass, the energy is absorbed by surfaces below which become warmed and emit radiant energy but of a long wave length to which the glass is not transparent. The glass absorbs the energy, becomes warmed, and heats air passed over it, which then is used to heat the building. The air is heated to as much as 200° F. and has actually heated the house to 70° F. in sub-zero weather. A conventional heating system must be used when the sun does not shine, but fuel savings of up to 20 per cent are reported.

As for any problems encountered as a result of snow, it was found that the angle at which the trap was placed would cause the snow to slide off. Hail constituted a different problem, however, which was overcome by placing a screen over the entire trap. A means of preventing the breakage of glass due to expansion from the heat is being studied.

At the present time, therefore, solar energy can be utilized, not with the idea of replacing the heating system but only as an auxiliary source and a means of reducing fuel consumption.

The accompanying map shows an approximation of the number of hours during which the sun shines during the heating season. The lack of sun during extreme winter days in the north is balanced by the longer length of heating season in that region as compared with the south.

The method of storing electric energy previously described, by which water under pressure is used to store the heat, has an especially interesting feature in connection with the high temperatures



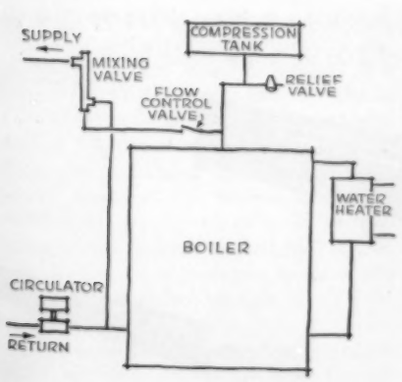
Ingersoll Steel Div., Borg-Warner Corp.

Furnace end of utility core which combines facilities for heating and plumbing

Electric panel heating by means of special heating cable, secured by insulated staples and ready for plastering. About 300 houses in the Seattle area are so heated

L. N. Roberson Co.

One method of controlling hot-water radiant heating system. Depending upon weather, mixing valve blends return water and hot water from boiler. Mixing valve is adjusted by hand or thermostat



(nearly 400° F.) employed. With such temperatures, the water on flashing to steam could be used to supply pressure cookers and possibly even to operate an absorption refrigeration cycle. The disadvantage is that water at this temperature is at high pressure — a disadvantage in a house from a safety standpoint.

This disadvantage could be overcome by units proposed but not yet available. One would use Dowtherm (instead of water) which has a boiling point of around 500° F. at atmospheric pressures. A single unit would contain heating, hot water, and cooking facilities for a house. Another development, using a patented compound with a boiling point of around 800° F., would fill the same functions and perhaps even that of power generation in isolated houses. Such a fluid could also operate summer cooling and refrigeration.

The single unit idea for mechanical equipment has taken another form in a so-called utility core first announced commercially a year ago. It consists of a prefabricated arrangement which combines space heating and water heating, plumbing, refrigeration, kitchen and bathroom facilities. The heating unit is a steel furnace with gas or oil burner.

RADIANT PANEL HEATING

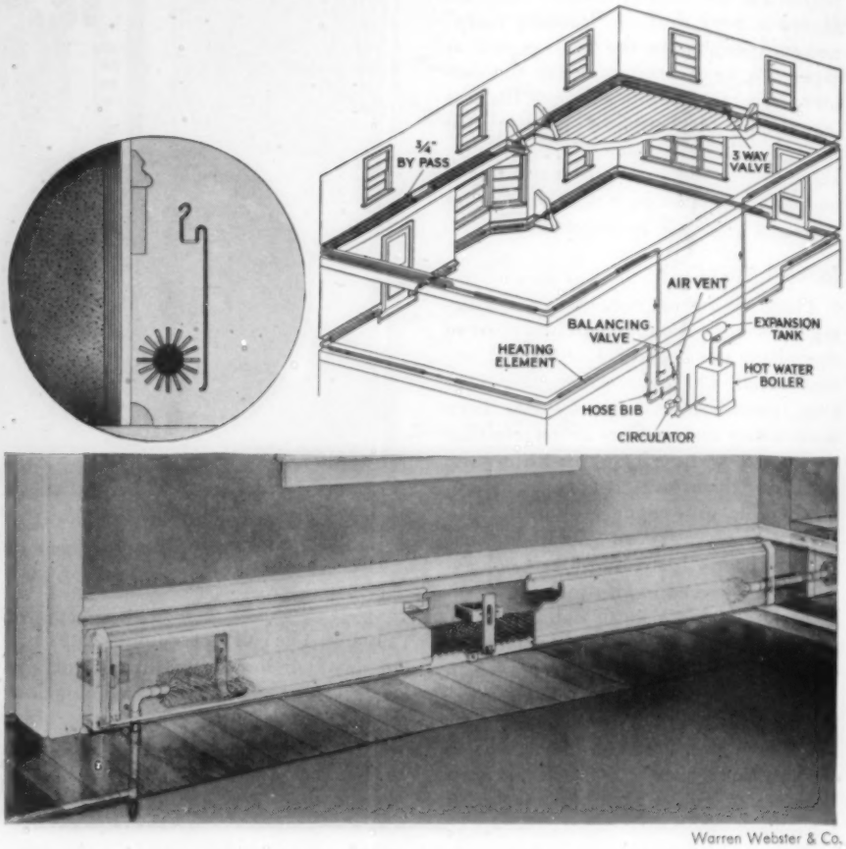
Perhaps the most discussed subject today in the whole field of heating is radiant or panel heating, in which wall, floor or ceiling surfaces are heated to relatively low temperatures and thus themselves become "radiators" in the true sense of the word. While even before the war there were several thousand of such installations in England and Europe, the first installation of importance in this country in 1930 was followed by only a few others until the late 1930's. Off to a slow start, this method almost overnight became immensely popular and captured the fancy of the layman perhaps as no other method has done.

The most widely employed medium in panel heating is hot water. More recently warm air has gained ground, and in the Northwest electric cable is being used in the walls, floor or ceiling simply being plastered in or otherwise covered. A cable commercially on the market for this purpose has a maximum continuous temperature of 167° F., installation being made on a basis of 1½ watts capacity per cu. ft. of space in large rooms and 2 watts per cu. ft. in small rooms. The desirability of using this method is, of course, closely related to the cost of electric energy. Experiments are also being made using thin aluminum foil strips on ceilings.

At the present time most floor installations seem to be of ferrous pipe while copper tubing is used in most ceiling jobs. Either is satisfactory for floor or ceiling installation and either a floor or ceiling installation will give satisfaction where properly designed and installed.

With warm air, a dropped plaster ceiling which acts as the radiating surface (about 2½ in.) provides space in which warm air circulates. Somewhat more energy is required for the fan than for a corresponding pump with a hot water system, but this is offset by the argument that a leak in the warm air space would be no consequence.

Just what are the advantages which radiant heating offers and which have

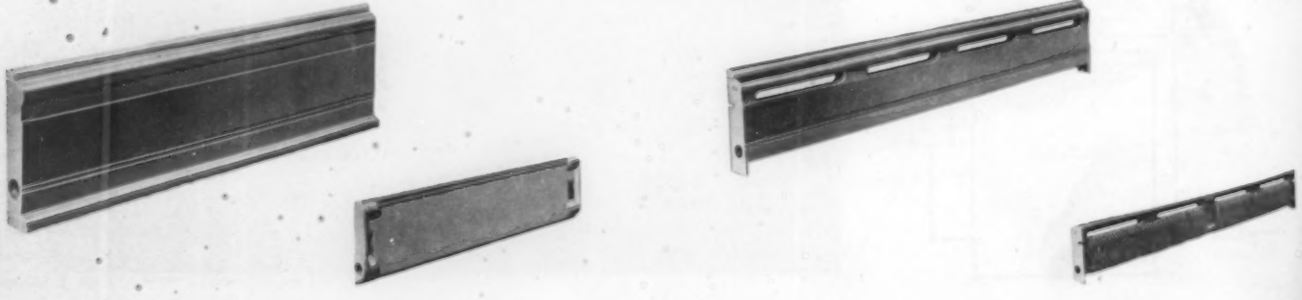


Warren Webster & Co.

In this system of baseboard heating, the heating elements are installed in continuous loops, one to each floor of the house. Where reduced heat may be desired, hot water can be diverted around the heating element by a hand valve. Heating element is ¾-in. copper tubing with 2¼-in. diam. fins. Air enters at floor line, passes over convector element and out the top. Floor-to-ceiling temperatures vary less than 2° F.

Two types of hollow cast-iron radiant baseboards. Left: Front and rear views of standard baseboard with a rating of 1.25 sq. ft. per linear ft. Right: Similar views of a higher capacity type with extended surface and a rating of 2.08 sq. ft. per linear ft.

Burnham Boiler Corp.



caused so much interest in it? The first and indisputable one is that there is no visible heating equipment to mar the decorative scheme or occupy floor space. From that point on, the advantages of radiant as compared with convection heating become more and more a matter of opinion. Proponents of panel heating claim substantial fuel savings, but this is always a difficult point to establish. They point to a feeling of greater comfort, but since comfort is subjective, it is hard to prove. The cost is a little easier to determine and so far, in most cases, panel heating is somewhat more expensive to install than a corresponding convector job. It is possible that this is a temporary situation due to the unfamiliarity of contractors with this work.

The preceding summary appears to be a very inconclusive argument for radiant heating; in many respects this is due to the nature of heating. In heating there are so many variables that even years of research may not yield a conclusive positive yes-or-no answer to a given question. For example, can anyone prove that, by engineering evidence, warm air is preferable to hot water for house heating — or vice-versa? The writer believes not; so much personal opinion and personal experience enter into such questions. Not only these factors, but also specific requirements, such as location, architects' and owners' preferences, and climatic conditions, are variables.

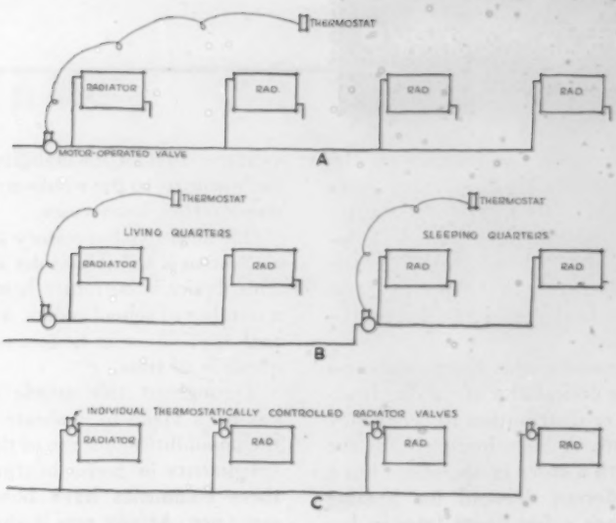
However, the fact that proof for some of the claims for radiant heating can't be completely established doesn't mean that these advantages do not exist. This method of heating has been developed to a reasonably high degree. There is much to be said for it. There is also much to be said for convection heating (whether with convectors, radiators or circulating warm air). As a result the writer concludes that as time goes on it will be found that each method has its own particular field of application and all will be widely used.

Baseboard heating is one of the new variants of radiant heating. There are two distinctly different forms of baseboard heaters available, one being a more or less flat cast iron chamber which replaces the conventional baseboard and through which hot water is circulated. The other is a combination radiator and convector; in one make it consists of a copper tube with copper fins running in a continuous loop around the exposed walls of a house, a separate loop for each floor, and concealed by a metal baseboard. Space at the bottom and at a molding in the top permits air to flow through and become heated by convection. Radiation is from the front of the baseboard. Another design is of cast iron with vertical fins.

Results obtained with these units indicate an exceptionally low floor to ceiling temperature differential, and, as with the radiant heating, the absence of visible heating equipment is an esthetic advantage. Additional advantages include the accessibility and simplification of piping, since usually only one riser and one return are ordinarily required for each floor. In the case of the convector type, the baseboard can be removed for cleaning, although this is required only once a year or so, since the low air velocities do not carry dirt over the heating element in quantity. In rooms of exceptionally high heat loss, due to high ceilings, severe exposures, poor construction or extreme climate, the baseboard may not give the necessary capacity. Conservative manufacturers prefer to consider baseboard heaters as a specialty and be consulted on each installation so as to be assured that heating satisfaction results.

In house heating today, steam or vapor enters the picture whenever the project becomes large enough so that the power requirements of a fan or pump become a consideration. One experienced engineer sets the dividing line at about 1000 sq. ft. of radiator surface. Above this point steam should be included for consideration, below it steam is probably noncompetitive.

Gravity hot water is today practically dropped from consideration. There is considerable design detail involved in a good gravity system and few designers are interested in making the lengthy and unprofitable calculations involved in a residential project. Forced hot water systems are simple to design and have additional advantages which make it well worth while. Use of a circulator overcomes the sluggishness of a gravity hot water system and thus prevents overshooting of temperature, with the result that it saves fuel. The power requirements are small.



Various applications of motor-operated control valves to water or steam systems: (A) all units controlled by single thermostat (steam or water at boiler controlled by limit switch operating the burner); (B) house divided into zones determined by room exposures or occupancy requirements; and (C) radiators individually controlled. For warm-air systems, motor-operated dampers can be similarly applied

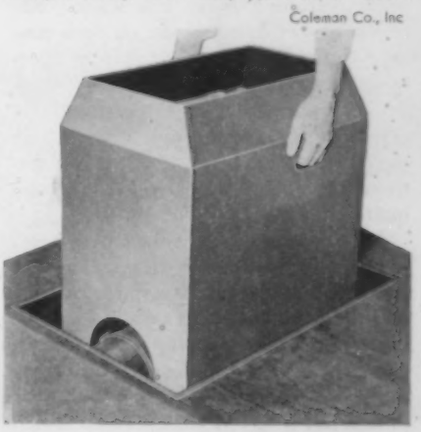
So far not much attention has been paid to the more conventional equipment and systems; instead the emphasis has been on the new and more or less exciting developments. The architect has been through the mill with the older methods and systems and knows them, as he knows old friends, with an understanding of their good points and their weaknesses. The convector is an example; it is now approximately 20 years old, has proved itself, and the proof of its acceptance is reflected in the gains it has made on the cast iron direct radiator. When recessed or concealed it is not entirely invisible, but in a great many cases is practically unnoticeable.

TEMPERATURE CONTROLS

Control of hot water — or steam — has reached a high stage of development. One well known method is to use a mix-

Oil or gas floor furnaces in packaged units can be installed beneath floors inexpensively and simply, without ducts

Coleman Co., Inc



ing valve in which hot water from the boiler is blended with cooler water from the return line and with the ratio automatically adjusted by a thermostat located outdoors, so that the lower the outside temperature the higher the ratio of hot water to the total handled by the circulator.

There is considerably more awareness today of the desirability of varying heating output or distribution to occupancy requirements. A busy housewife in the kitchen, with a stove in operation, has a sharply different demand for heating than she does a few hours later in her living room, and both of these rooms have occupancy requirements different from the bedrooms. To add to the confusion, the rooms on the north on a sunny day have greatly different demand from those on the south.

One approach to such a problem is to have individual thermostatically-controlled valves on every radiator. More frequently, however, the building is zoned, making a separate zone of each portion of the house with similar heating requirements. The hot water or steam main to each zone is then valved, with a thermostat in each controlling the operation of the valve serving that zone. The valve can be one which is either totally open or totally closed, or of the modulating-type, the opening being in proportion to the heat demand.

The mixing, or three-way valve principle, can also be applied to the warm air system, in which case interconnected dampers mix return and heated air. Similarly, the zoning idea is also applicable to warm air, with open-and-shut or modulating dampers operated by a motor serving each zone.

AIR CLEANING

One of the important advancements in heating systems in recent years is that of the electrostatic air cleaner, now available for use with warm air furnaces. Appreciation of this device will be greatest, probably, in soft coal burning regions where curtains and draperies need recleaning every few weeks. Removal of dirt from the air on each passage through the heating system enormously reduces the soiling effect. These devices naturally are still comparatively expensive. In many communities where the air is not especially dirty the conventional replaceable filter will do an adequate job.

Just as gravity hot water systems have more and more dropped out of sight, so has the gravity warm air system declined somewhat in popularity in larger houses. The warm air system operated by gravity does not have the inertia of a hot water system without a pump, but it has its own peculiar disadvantage, that of its inability to supply the warm air to the windward side of the house in too many cases.

One additional accessory to the warm air system is an ultra-violet air sterilizer. This device is currently being tested in a number of school rooms, and its eventual application in houses seems only a question of time.

Throughout this article an attempt has been made to evaluate or appraise the possibilities of some of the newer developments in house heating. Some of these comments have been qualified, some not. At any rate it should be emphasized that there seem to be very few cases where an unqualified flat statement can be made about the advantages, disadvantages, strength or weaknesses of any combination of fuel and system. The reason for this is that so much depends on the circumstances, objectives, client's income and so on. For example, it is possible to heat a small house comfortably with a warm air furnace with only one outlet and with no fan. The result may be some overheating in certain areas, perhaps underheating in others, and there would almost certainly be a high temperature differential between floor and ceiling. In spite of all these facts, such an installation is desirable for a certain type of small house where economy in first cost is an extremely important consideration. If the climate is mild, then the number of possible applications of such units might be greatly increased.

Similarly, smokeless coal-burning space heaters have recently made their appearance, and can be expected to be used in large numbers, for they fill a real need in the small house field.

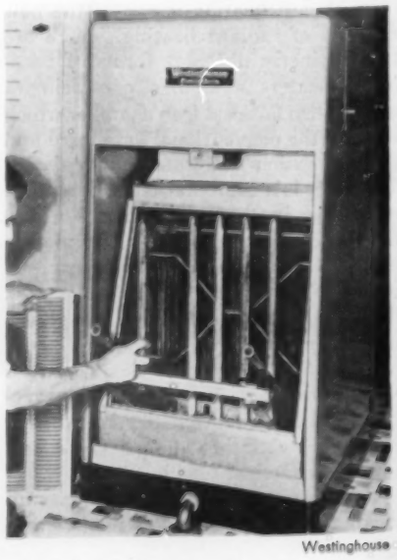
The point is, then, that appraisal and evaluation require a basis of comparison and there isn't any single basis of comparison to use.

The list which follows is a partial check list of some of the more important points to be considered in appraising heating systems. These points are not necessarily in the order of their importance, although some of the items of lesser importance are placed toward the end.

1. Cost of installation, ready to operate, and operating cost, including not only fuel or energy costs but maintenance, servicing and repair.
2. Reliability of manufacturer and installer. Both should be financially responsible and with a good reputation.
3. Capacity of unit or system. Will proposed arrangement meet 70° F. requirement on coldest day? This includes not only the unit or system itself but ability of the source of fuel or energy to deliver under extreme conditions.
4. Dependability of the unit or system. This is exceptionally important, and includes investigating evidence from other users if method is new.
5. Degree of automatic operation and control.
6. Floor-to-ceiling temperature differential. This affects economy of operation but also comfort; a 70° F. temperature at the breathing line may meet the contract but if the floor is at 60° F. the owner will be less than happy.
7. Horizontal temperature difference. Is the desired temperature maintained throughout? It may be 70° F. at the living room breathing line and 65° F. at the dining room breathing line.
8. Occupancy requirements. Design should meet as far as possible the requirements of the family and of the type of room.
9. Space occupied by the heating system, including fuel and ash storage facilities, if any, in basement and the various rooms.
10. Cleanliness, including odors.
11. Noise. Consider possibility of transmission to rooms.
12. Harmony with decorative scheme.

The architect and his clients today have available for their selection the most comprehensive and versatile equipments for heating ever known. The only fly in the ointment is that the very completeness of these lines creates confusion and may result in bewilderment when the final decision is to be reached. This is a low price to pay, however, for the richness of the array.

Electrostatic air cleaner is designed to remove 85 to 90 per cent of airborne dust particles, when connected with warm-air furnace or as part of an air-conditioning or air-circulating system



Westinghouse

THE SCHINDLER FRAME

R. M. Schindler

Architect

PROBLEM

Material and construction are an integral part of the conception of a building.

The standard system of wood frame construction is not suitable for the execution of the contemporary dwelling. The balloon frame presupposes a box-shaped building and cubicle rooms, with large wall areas and small openings, solid partitions, a superimposed sloping roof with small projection of decorative character only.

The space architect thinks in terms of articulated space forms. Large openings reduce walls to a minimum. Ceiling heights vary without disturbing the rambling low-to-the-ground and open-to-the-sky character of the building. Careful orientation of rooms makes clearstory windows and large shady overhangs mandatory.

SOLUTION

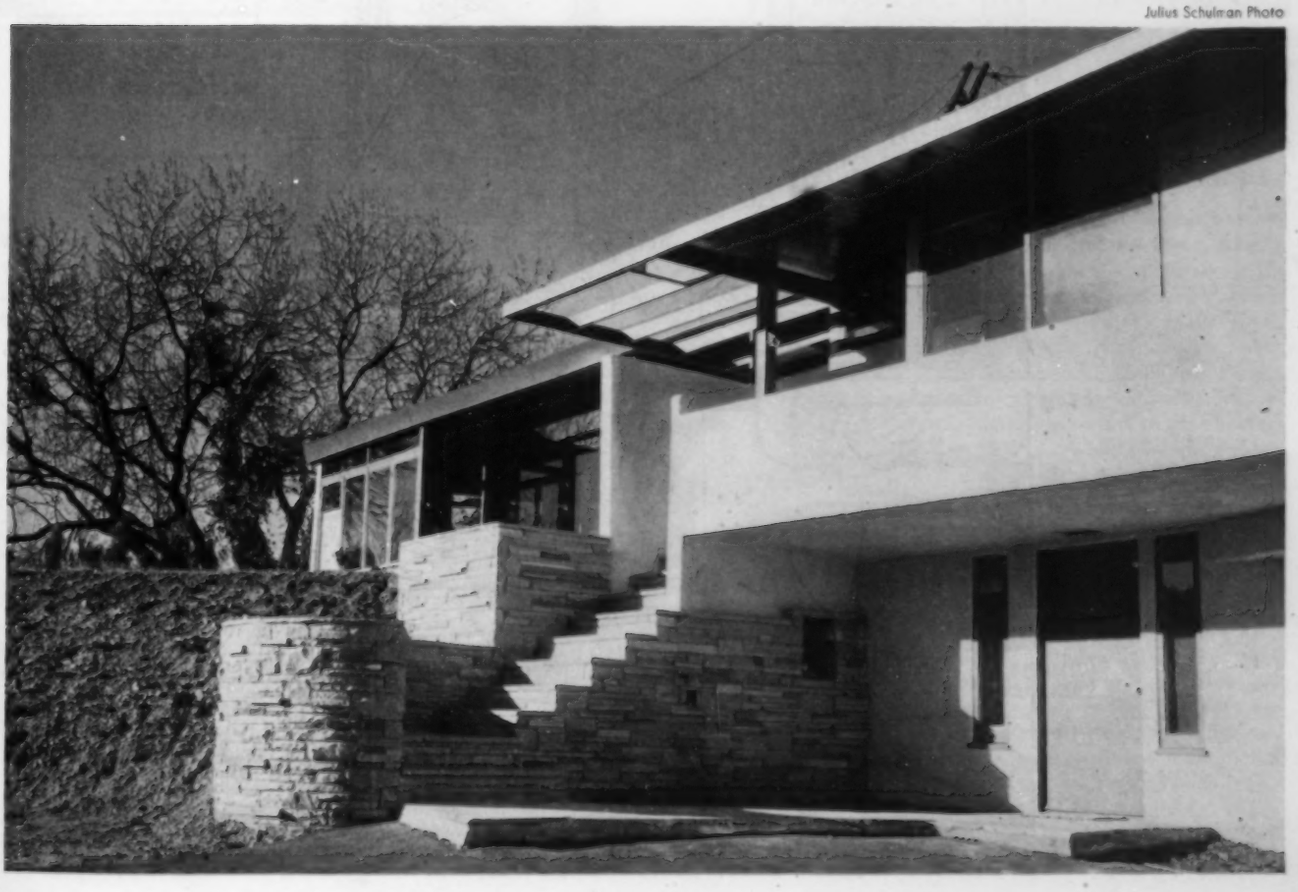
My struggles with tradition-bound carpenters finally developed the "Schindler Frame," which eliminates a multitude of structural makeshift details which the balloon frame forces on the contemporary building. In building a contemporary house, the "Schindler Frame" utilizes ordinary framing lumber and established framing techniques. Although some of the features shown are based on California building regulations and conditions, only slight alteration should be necessary for use in other climates.

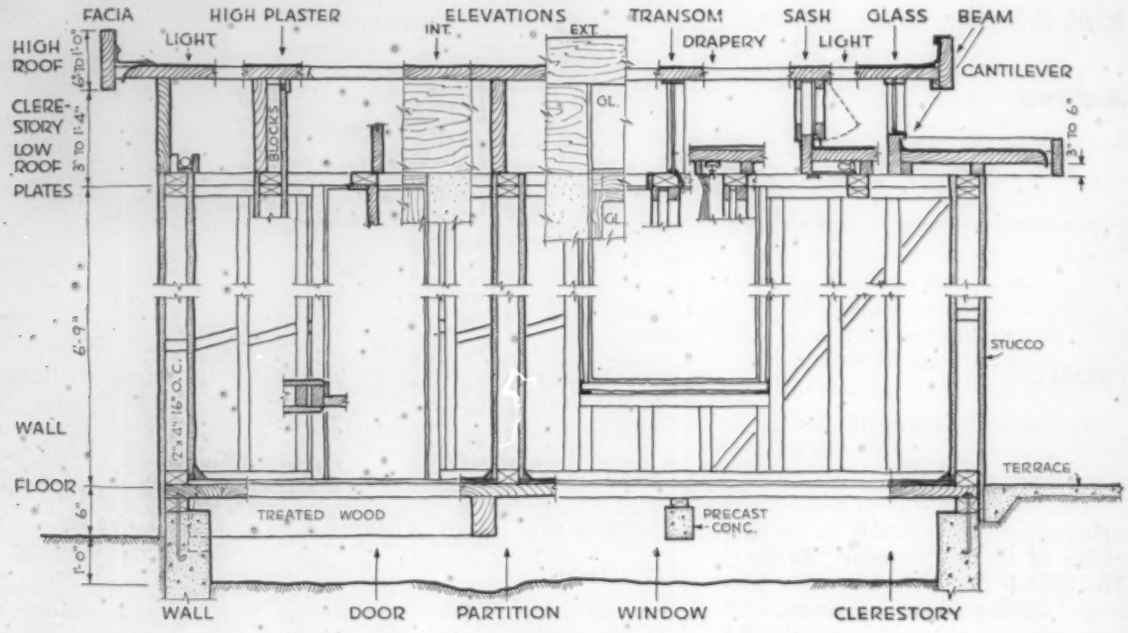
FLOOR FRAMING

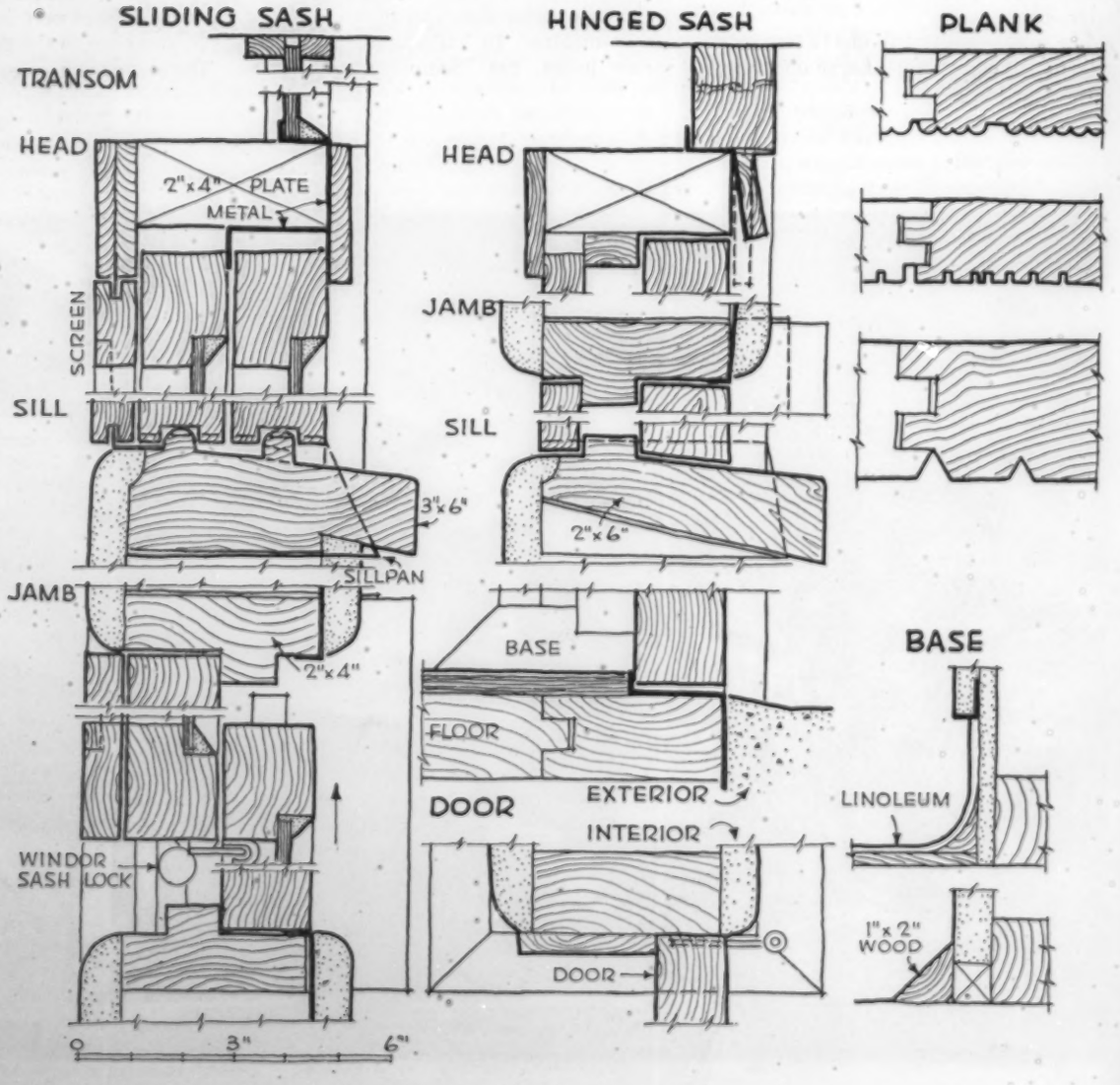
Basements, with all their expensive problems of moisture, drainage, ventilation, light supply, sanitation, and access stairs, are eliminated. Consequently the desired more intimate connection with the out-of-doors may bring the floor of the house close to the ground.

The standard floor construction, built

Julius Schulman Photo




FACIA
HIGH PLASTER
LIGHT
ELEVATIONS
INT.
EXT.
TRANSOM
DRAPERY
SASH
LIGHT
GLASS
BEAM
CANTILEVER
HIGH ROOF
CLERE-STORY
LOW ROOF
PLATES
BLOCKS
GL.
GL.
1'-3" TO 6"
STUCCO
WALL
FLOOR
2"x4" 16" O.C.
TERRACE
TREATED WOOD
PRECAST CONC.
WALL
DOOR
PARTITION
WINDOW
CLERESTORY


SLIDING SASH
TRANSOM
HEAD
2"x4" PLATE
METAL
SCREEN
SILL
3"x6"
SILLPAN
JAMB
2"x4"
WINDOW SASH LOCK
3"
6"
HINGED SASH
HEAD
JAMB
SILL
2"x6"
BASE
FLOOR
DOOR
EXTERIOR
INTERIOR
DOOR
PLANK
BASE
LINOLEUM
1"x 2" WOOD

Julius Schulman Photo

up of beams and joists, requires expensive treated lumber, and, because of its thickness, deep excavations. The proposed tongued and grooved planking of the "Schindler Frame" is simpler to install, reduces treated lumber to a minimum, and gives a warmer floor. Carpeting may be applied without any additional finish flooring. The possible wide floor spans make the use of termite-proof prefabricated concrete beams economical for house construction.

WALL FRAMING

The traditional stud is cut to wall height and provides for a double plate at ceiling. In a space house, ceiling heights vary repeatedly. This makes it difficult for the carpenter to ascertain and locate the various stud lengths required. It also interrupts the top plates wherever ceiling heights change, thereby weakening the important horizontal tie these plates should provide for the building.

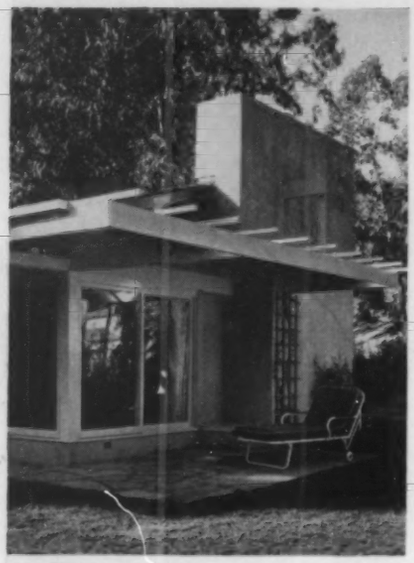
The "Schindler Frame" eliminates all these difficulties by cutting *all studs throughout the house to door height*, and thus provides a *continuous* belt of plates at this height. The horizontal continuity of the design becomes a structural reality and does not have to be attained by a repetition of abstract measurements.

DOORS AND WINDOWS

Door and window frames are set in below and above these wall plates, which give a horizontal guide for their heights.

The standard double-hung or casement window is not suitable nor structurally feasible for the large unbroken openings to be provided. Therefore, wide openings are equipped with sliding sashes, which remain evenly supported whether open or closed. Their size is limited only by their inertia, which, if excessive, would make operation difficult. No complicated wall pockets to hide them are contemplated, since the wall areas are seldom large enough to receive them. In case of windows which extend above the height of the main plate, it is usually sufficient to operate the section below it, and the portion above may become a simple stationary transom. Narrow hinged sash and exterior doors always open out. This feels better, is more sanitary, saves room space, and avoids complication with drapes. Flyscreens are preferably inside, protected against the dirt and weather.

Space architecture has to give special consideration to windowheads, which may interfere with the continuity between two adjoining space units. The ideal condition would be to carry the adjoining ceilings through without any header to emphasize the separating wall. The elimination of such headers becomes a very complicated problem in the standard frame. The "Schindler Frame" simply cuts out the bottom plate and uses the remaining plate as the head member of the frame for both doors and windows. This member thereby becomes small and unobtrusive, and does not interrupt the continuity between adjoining space units, especially between the room and the out-of-doors.



CLEARSTORY COURSE

On top of the plate course rests a horizontal band consisting of timbers and glass, which raises the ceiling to the required height. These timbers are generally from 3 to 16 in. high, and serve at the same time as headers to bridge openings, as roof beams, and cantilevers for overhangs. If higher than 16 in., a built-up truss may be substituted. Clearstory windows are inserted without difficulties, and the roof levels stepped at any place regardless of partitions and walls below, giving the space architect complete freedom to shape the rooms. Overhangs are carried by means of cantilevers which are easily and deeply anchored into the structure.

ROOF CONSTRUCTION

The standard roof construction with rafters, sheathing, ceiling joists, and plaster, is complicated and so thick that clearstory windows between different roof levels necessitate excessive ceiling heights.

The "Schindler Frame" eliminates all rafters in favor of a tongued and grooved plank flooring, which forms roof and ceiling at the same time. Since the composition roof used may spill at all edges, roof slopes may be eliminated completely or reduced to a minimum to help drainage. The composition top sheet should be laid without laps, and a heat-reflecting surface is advisable. The plank may just as easily be used for hip and shed roofs. Its acoustical properties are superior to ordinary plaster and may be further improved by proper detailing.

The efficiency of the plank roof compares favorably with standard constructions. It cuts labor costs without adding material. A thickness of 1⅝ in. will span 10 ft., which can usually be made the maximum span due to flexibility of the clearstory course. It eliminates rafter-cuts and plaster, since it may be treated to form a finished wooden ceiling, doing away with the usual plaster cracks. Space continuity is maintained, since ceiling and overhangs are of the same material. The plank may be run with various profiles to suppress joints, checks and defects.

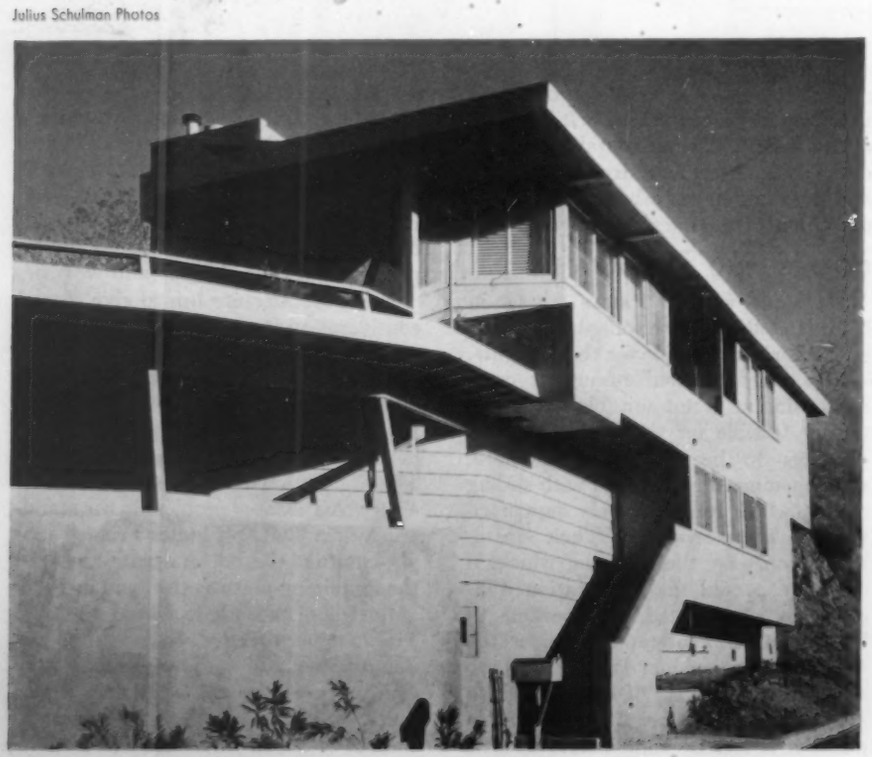
As far as insulation is concerned, the 2 in. plank is superior to the usual attic, and its efficiency may be improved by increasing its thickness, which will also strengthen it. This is less expensive than the application of insulating materials (fiberboard, etc.) since these require extra labor for an additional operation. If the planks are 2⅝ in. or more thick, they are considered to be one-hour fire resistant.

By treating the ceiling and the clearstory course in wood, the wall treatment (plaster, etc.) stops uniformly on the level of the top plates, thereby eliminating scaffolding and emphasizing the screen quality of the wall. The same considerations recommend the use of glass gables in case the roof is sloping.

The roof edge is protected by means of a facia which also serves as a supporting beam between cantilevers and to span clearstory openings.

It is obvious that, as soon as our technique permits, the tongued and grooved plank may profitably be replaced by a prefabricated cellular slab.

Julius Schulman Photos



UTILITIES

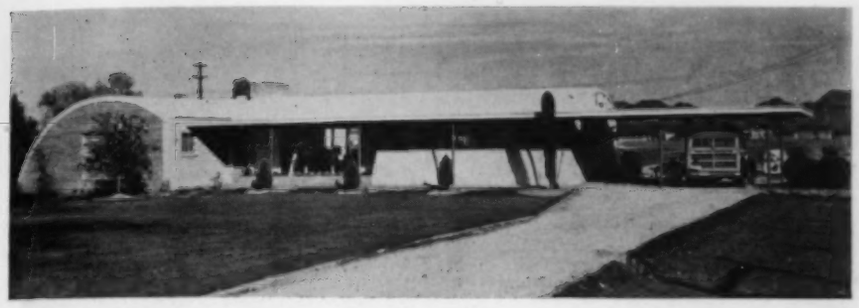
The elimination of the attic space has no disadvantage as far as utility service is concerned. Distribution is made below the floor. No electric outlets are necessary above plate level, either for direct or indirect lighting. By keeping the direct light sources at door height, near eye level and facing down, they are never seen squarely, thus assuring maximum effect without glare.

The "low roof" serves efficiently to shade the windows, and receives Venetian blind pockets and curtain tracks as an organic part of the structure.

EXECUTION

Anyone who has ever supervised the building of a contemporary house will realize the relief of being able to give the carpenters one uniform stud-length, and to eliminate all notches for cantilevers, ties, and rafters. Although the "Schindler Frame" unavoidably repeats certain characteristic details, it allows such freedom in the use of the more *important features* of space architecture that it should prove a boon in developing it, and might well help to give contemporary houses what the past called "style."

PRODUCTS for Better Building



Quonset-type framing units have been developed for low-cost houses, 20 to 24 ft. in width

ARCH-RIB STEEL FRAME

Steel *Arch-Rib Framing Units* for low-cost Quonset-type houses have recently been announced by Stran-Steel. Houses of this type, containing five rooms, reportedly can be built to sell within a $4000 to $6000 price range. The framing units, for 20-ft. and 24-ft. wide houses, are individual curved I-shaped members with a flange width of 2 in. and a depth of 3⅝ in., cold formed from 16 gauge steel and joined together so as to provide a nailing groove. Straight Stran-Steel studs are used where vertical side or end walls are desired. Exterior covering consists of shop-curved or straight corrugated steel sheet. Interior finish is of conventional materials applied over wood or steel furring members. Floors and partitions are conventional and site constructed. Stran-Steel Div., Great Lakes Steel Corp., Penobscot Bldg., Detroit, Mich.

SOUND SYSTEMS FOR HOUSES

The *Soundcraft Radio System* is especially designed for built-in installation in houses, and consists of a portable tuner, amplifier, record player, and one or more speakers, plus the antenna and necessary wiring. The portable tuner, about the size of a cradle telephone, is the only part of the system that appears in the rooms. Different speaker types and combinations can be selected to suit the particular house. Data sheets, showing wiring, installation diagrams, and dimensional details are provided so that the system can be installed by an electrician. Initial production provides for standard AM reception only, but an FM tuner will be provided later for converting to FM operation. Reeves Sound Studios, 10 E. 52nd St., New York, N. Y.

INCINERATOR

For reducing garbage and refuse to a fine ash, the *Waste-King* residential incinerator is installed flush with the wall in the base of the house chimney. In this way, advantage can be taken of a strong natural draft. A gas burner is built into the unit for use when needed to dispose of exceptionally wet loads. Grates and front are of cast iron; and case is of one-piece welded construction. A built-in mesh traps escaping fly ash. Where the wall-style incinerator is impractical, a floor unit which connects with the chimney may be used. Incinerator Products Co., 657 S. Post Ave., Detroit 17, Mich.

ALUMINUM WIRING

A new type of rubber insulation with increased heat resistance has been developed for use on aluminum wiring to replace copper wiring during the current acute copper shortage. The National Electric Code has long recognized and approved aluminum for electrical conductors, but until recently the higher current capacity of copper as compared with that of aluminum has restricted its general use for insulated wire and cable. With the development of a Type RH heat-resisting insulation, rated at 75° C. instead of the usual 60° C., there is no longer a safety requirement to increase the conductor area of aluminum to compensate for its lower conductivity (84 per cent that of copper). The corresponding power loss, of course, remains unchanged.

Aluminum wiring is available in all sizes up to 1,000,000 CM, starting at size 12, and is made with standard strandings. Dimensions and finishes remain the same as for ordinary building wire. Hazard Div., Okonite Co., Passaic, N. J.

FINNED RADIATION

Type WI Extended Surface Radiation has been added to the list of Webster products for heating systems. It is completely nonferrous, being made of specially annealed copper tubing, aluminum fins, and brass couplings. Tubing is 1⅛ in. outside diam., .035 in. wall thickness, and good for saturated steam pressures up to 100 lb. per sq. in. and temperatures up to 350° F. Fins are 3-in. squares, rib-reinforced, and made of .020-in. aluminum. Standardization is obtained through use of only one tube diameter and one fin size. Units are available in 5 lengths from 2 ft. to 6 ft., incl., for steam and hot water heating in places where floor or wall space is limited. Also manufactured are brackets, offset adapters, and covers. Warren Webster and Co., Camden, N. J.

SEALING COMPOUND

Para-Plastic, the hot-poured rubber seal for concrete expansion joints, is now manufactured in the following colors: green, red, gray, cream, yellow, and black. Servicised Products Corp., 6051 W. 65th St., Chicago 38, Ill.

Timber connectors for increased rigidity

FRAMING ANCHORS

Timber connectors, known as *Trip-L-Grip* framing anchors, have been developed to increase the rigidity around window and door openings and increase the strength of floor and wall framing in house construction. The anchors are made of 18-gauge zinc-coated sheet steel and are joined to the wood with non-splitting nails. Laboratory tests at Georgia Tech are reported to have demonstrated their effectiveness for joining joists to beams, beams to posts, studs to sills, rafters to plates, studs to girts, and for making other house framing connections. The anchors are said to fit naturally into at least 90 per cent of house framing joints. If connections are at angles, flanges can be bent accordingly. Timber Engineering Co., 1319 18th St., N.W., Washington 6, D. C.

(*Continued on page 168*)

ADVANCES IN HOUSE LIGHTING

By E. W. Commery, General Electric Company

A LABORATORY for the study and presentation of latest techniques in residential lighting has been created at Horizon House in Nela Park, Cleveland. From earliest planning stages to completion, the architectural, decorative and lighting schemes were developed together in the hope of reaching new heights of correlated development. It is not a "model home" but a practical laboratory which we hope will lift design horizons for future use of light as a brilliant decorative medium and as a functional competitor of daylight.

The design, furnishings, and lighting have certain simply stated goals:

1. To fuse measured illumination with lighting qualities that aim to provide the greatest physical and emotional comfort. (The actual quantitative values are in accordance with the recommended practice of the Illuminating Engineering Society.)
2. To blend the mechanics of lighting equipment into the completed interior, combining function and esthetics.
3. To employ a number of new light sources, both fluorescent and incandescent, in ways that provide new effects and improved performance.
4. To demonstrate more fully the great range of possibilities for effective use of light and lighting in residential interiors.

In developing answers to objective (1), over 100 footcandles of light have been attained at several places in the living-dining room where close visual work might be carried on. Actually this degree of illumination can be supplied over limited areas beneath any one of the ceiling downlights by using 150-watt projector-spot lamps. For a broader spread of lighting, the 150-watt projector-flood lamp may be used: its use reduces the illumination to about one-third. To fuse local lighting with general lighting and to assure proper brightness contrasts, cove lighting and a perimeter ceiling band have been used. The cove light alone supplies an average of 10 footcandles from 8 Slimline fluorescent lamps, each 64 in. long. Floor and table lamps also supply a general distribution of light to reduce brightness-ratios, which high local illumination values create. Any of these systems may be used alone.

Freedom from obtrusive hardware, fastenings, and other mechanical elements is obtained through careful attention to details. (See page 151). The cove lights, perimeter wall lights, and ceiling downlights may all be opened and closed for cleaning and lamp renewal without fear of disfiguring the ceiling, wall, or woodwork finishes.

Living-dining room of Horizon House, designed to test and demonstrate the effectiveness of latest residential lighting techniques. Room designs by M. L. Gormley

Fluorescent lighting has been developed to illuminate the room completely for both "effect" lighting and functional lighting. Fluorescent lighting enters into every room of the house with a graciousness that is actually surprising.

Of first importance is the wall color, derived from the color one sees on the inner layers of birch bark. Results show that completely successful rooms can be created when all selections of color for an exacting interior are made in compartments illuminated with incandescent and fluorescent lamps.

At present, fluorescent lamps (White 3500° K) are used for all general distributions of light. For some of the more localized areas such as alcoves and niches, 4500° K lamps are used.

It was not many months ago that small-diameter fluorescent lamps were made available. Their applicability to many types of lighting problems that have always been awkward to handle makes for ease of design and installation, especially in structural types of work. The circular fluorescent lamp also adds immeasurably to the designer's tools.

(*Continued on page 151*)

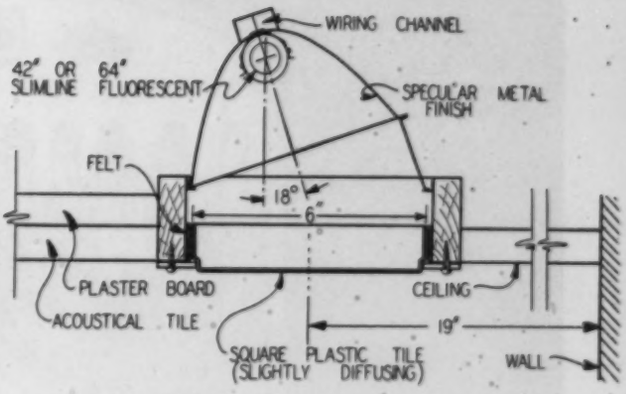
Careful selection of colors was made for best results under fluorescent lighting

Description of Principal Colors	Munsell* Color Notation
Wall paint—pale grayed yellow-red	8YR 8/4
Carpet—sage	5B 6/1 to 5B 7/1
Painted tops of desk, fireplace, cabinets—horizon blue	5BG 7/3
Wood—fireplace, cabinets, dining table, desk, large coffee table—burled maple.	
Davenport—ice blue	5BG 7/4
Pair of fireside chairs—grayed blue	7BG 5/2
Love seat, desk chair, large wing lounge chair—flamingo red	4R 5/9
Lounge chair in front of desk—citron	10Y 8/5
Leather dining chairs—citron	9Y 7/6
Drapery background—citron	10Y 8/6

*Munsell Book of Color: A Revision and Extension of the Atlas of the Munsell Color System, Standard Edition of 1929.

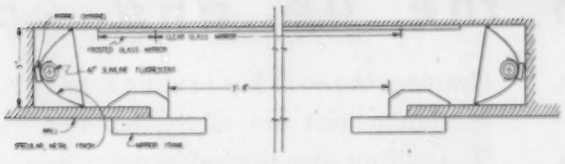
HOUSE LIGHTING TECHNIQUES

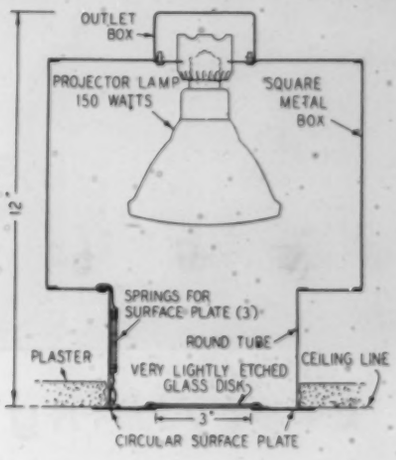
Photos and drawings from "Horizon House," General Electric Co., Nela Park, Cleveland



Ceiling Slot Lighting

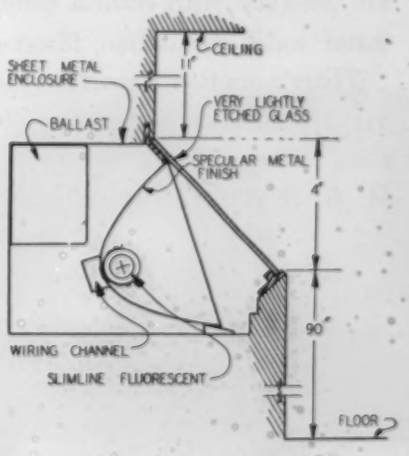
Narrow luminaire slot in ceiling, fitted with crystal-etched plastic tile, furnishes diffused light upon nearby wall





(Above) Spot Lighting
(Left) Cross Lighting

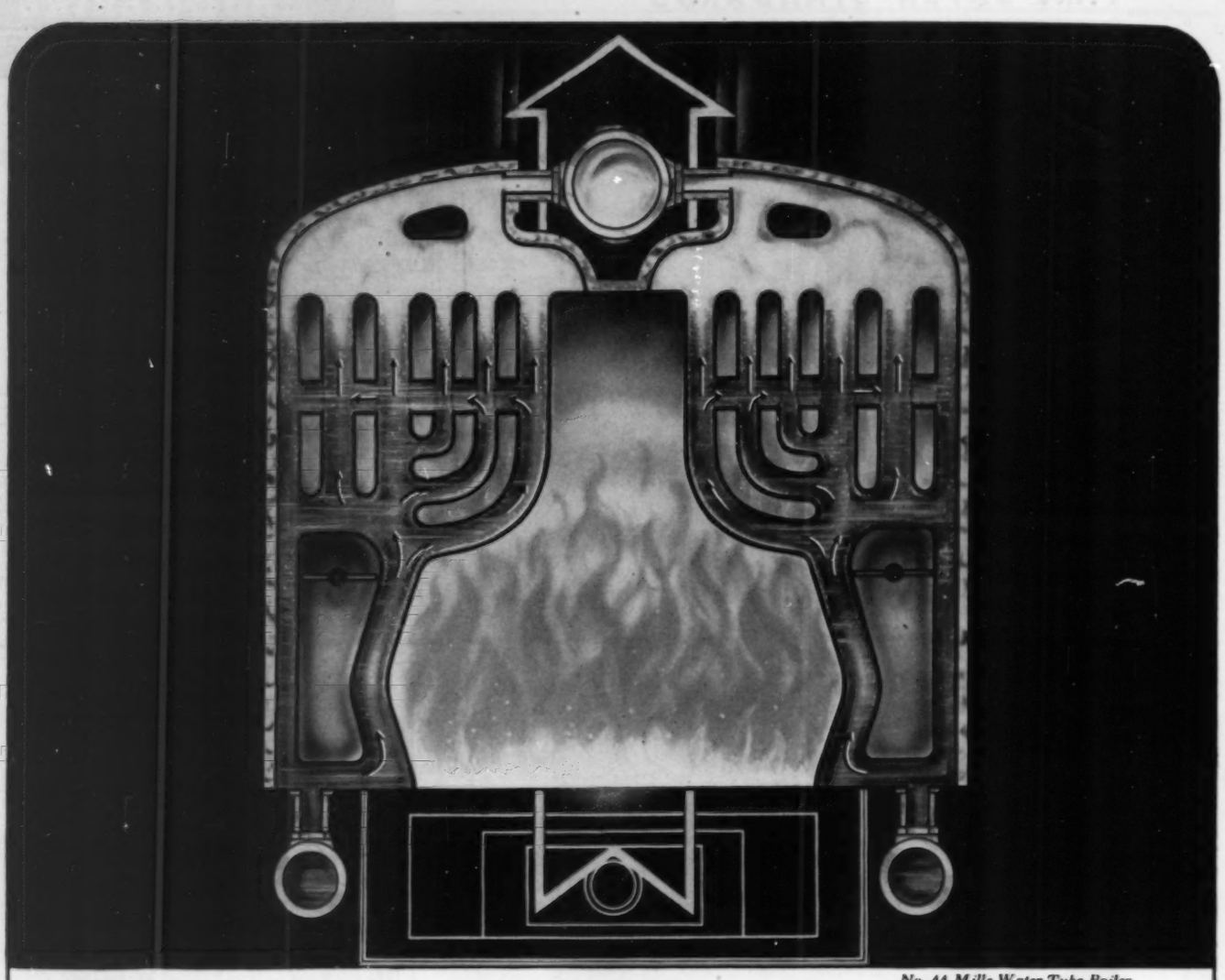
Projector lamps for dramatic effect and supplemental lighting; recessed tubes for brilliant cross-lighting of mirror



Cove Lighting

Offset design for cove lighting gives even wall brightness above and below cove. Note absence of "hot spots"

(**Continued on page 153**)



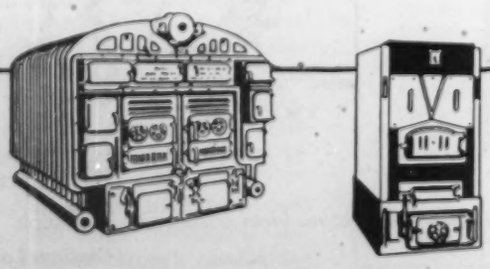
No. 44 Mills Water Tube Boiler

Everything's on the up and up!

When water gets hot it wants to go *up*, and it naturally takes the easy way up — the vertical way — if given a chance. That's why H. B. Smith Cast-Iron Boilers are designed with *vertical* water tubes, for faster water circulation, faster steaming.

There's another important reason for this vertical construction . . . soot just won't cling to a smooth, vertical surface. So H. B. Smith sections are practically self-cleaning; the soot-free heating surface takes maximum heat out of the hot flue gases. And within the *vertical* water tubes, any foreign deposits flow freely to the return drums from which they are easily flushed.

That's the vertical story. For more important reasons why professionals recommend H. B. Smith Cast-Iron Boilers for industrial, institutional, commercial and residential heating, write for your free catalog.



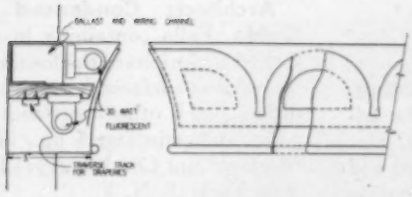
H.B. Smith

CAST IRON BOILERS

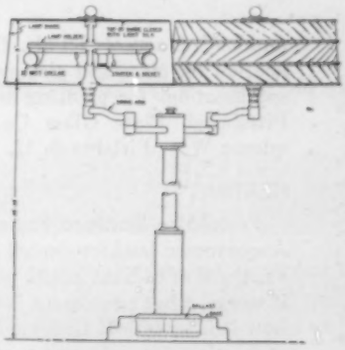
THE H. B. SMITH CO., INC., 62 Main Street, Westfield, Mass. Offices and Representatives in Principal Cities

HOUSE LIGHTING TECHNIQUES

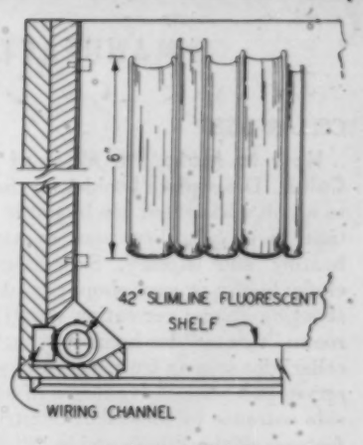
(*Continued from page 151*)



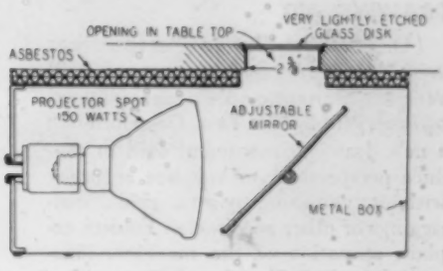
Valance Lighting



Twin Desk-Chair Lamp

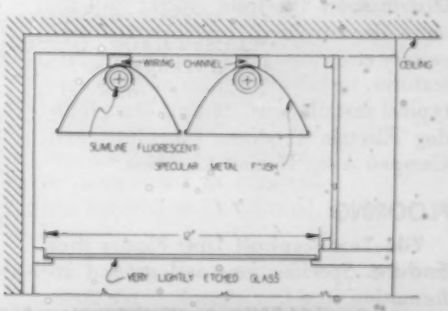


Bookcase Lighting



Reflected Downlighting

Dining table with built-in light box (sketch) which directs light upward to ceiling mirror for diffused downlighting



Ceiling Panel Lighting

Double row of fluorescent tubes above etched glass panel, for double or single use. Left: Kitchen. Right: Living room.

MANUFACTURERS' LITERATURE

CELLAR USES

How to Make the Most of Your Cellar. Descriptive booklet on the uses to which a basement can be put in addition to such utility uses as storage, heating and laundry. Suggestions include: hobby or work shop; gymnasium; shooting range; recreation room; playroom; "theater" for home movies; "cold cellar" for storing fruit, vegetables, preserves and wine. Advantages of an outside entrance to the cellar, construction features of the Bilco outside cellar door and cellar stair units. 20 pp., illus. The Bilco Co., 164 Hallock Ave., New Haven 6, Conn.* *10 cents.*

DRAWING AID

(1) A Short Cut to Perspectives with the Pomeroy Stereograph; (2) What the Sensational Pomeroy Stereograph Will Do for You. Description of a new drawing instrument said to produce perspectives to hair-line accuracy without vanishing points, grids, outriggings or other accessories. Folders explain operation of the machine, illustrate how it works. 4 and 20 pp., illus. Pomeroy Stereograph Co., Inc., 315 Ferguson Bldg., Cleveland 14, Ohio.

ELECTRICITY

Bulldog Feeder and Plug-in Bustribution Duct for Bus Duct Electrical Distribution (Bulletin 462). Bulletin on a decentralized, prefabricated secondary electrical distribution system, its features, installation, units and fittings; typical installations. 24 pp., illus. Bulldog Electric Products Co., 7610 Jos. Campau Ave., Detroit 32, Mich.*

FLOORING

Tile-Tex Asphalt Tile: Floors that Endure. Specifications and general information on a line of asphalt tile flooring for home, office and industrial use, and plastic asbestos wall tile, plastic tile flooring. Preparation of foundations, maintenance data, colors and patterns. 16 pp., illus. The Tile-Tex Co., Inc., Chicago Heights, Ill.*

GLASS, PAINTS, METALS

Pittsburgh Data Sheet Handbook. Looseleaf folder containing individual sections on the various glass, paint and metal products of the Pittsburgh Plate Glass Co. and Pittsburgh Corning Corp. All factual information concerning the products condensed in ready reference form. Installation procedures include a number of actual details. Open specification for glass and glazing, and basic specifications for painting are included. Pittsburgh Plate Glass Co., 632 Duquesne Way, Pittsburgh 22, Penn.*

HEATING

Panelaire Radiant Panel Heating. A consumer booklet describing the advantages of radiant panel heating, how it works, what equipment is needed and how it is installed. General information on heating principles and humidity; a 24-hour humidity and temperature graph taken in a Panelaire-heated home. 20 pp., illus. International Heater Co., Utica 2, N. Y. *25 cents.*

Rittling Magna-Fin Convector (Catalog MFC-CI). Complete information on convectors combining copper or steel tubing and aluminum or steel fins. Where used, advantages claimed, sizes, suggestions for piping connections, steam and hot water ratings tables, engineering data. 8 pp., illus. The Rittling Corp., 1292 Niagara St., Buffalo 13, N. Y.

There'll Come a Day — and that Day is Tomorrow! A humorous account in verse of the difficulties a manufacturer of heating controls met with in getting raw materials. 20 pp., illus. Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn.*

INSULATION

(1) Ferro-Therm Steel Insulation; (2) Ferro-Therm Steel Insulation — Shield of Protection for the Modern Building; (3) Ferro-Therm Steel Insulation for Refrigerated Construction. Three pamphlets describing the properties and uses of steel insulation. Charts showing its effectiveness; report on tests; installation information; advantages claimed. 16, 4 and 12 pp., illus. American Flange & Mfg. Co., Inc., 30 Rockefeller Plaza, New York 20, N. Y.*

"It's NO Joke, Son." The story of Cellulite cotton insulation as whimsically told by Senator Claghorn of radio fame. Gives general information about insulation, advantages claimed for Cellulite, installation data, etc. 16 pp., illus. The Gilman Brothers Co., Gilman, Conn.*

LIGHTING

Guth Lighting Catalog 44-A. Current line of fluorescent and incandescent lighting equipment. Includes general fluorescent data, complete specifications for each unit in the line, engineering information, maintenance and mounting data, general lighting design information including a room index table classifying rooms according to their proportions, and giving a formula for the determination of lumens required. 44 pp., illus. Edwin F. Guth Co., 2615 Washington Ave., St. Louis 3, Mo.

PAINTS

Architects Condensed Painting Guide. Folio containing in condensed form descriptions of the finishes required for various surfaces, materials and conditions, and other pertinent data on paint and painting. 4 pp., illus. M. J. Merkin Paint Co., Inc., 1441 Broadway, New York 18, N. Y.

PLANNING IDEAS

Room of the Month Ideas — March. First in a series of folders featuring original room designs: designs for a bathroom with a locker-type storage compartment for soap, tissues and cleansers, a built-in cabinet for drying small articles of clothing, an angle bath and matching lavatory, etc. 4 pp., illus. American Radiator & Standard Sanitary Corp., P.O. Box 1226, Pittsburgh 30, Penn.*

REFRIGERATION

Ice and Frost (Bulletin 147-B). A brief catalog of Frick freezing systems, giving general information, sections and plans, and a chart showing moisture-carrying capacity of air at low temperatures. 10 pp., illus. Frick Co., Waynesboro, Penn.

ROOFING, SIDING

Flintkote Building Materials: Roofing, Siding, Insulation. Bulletin on a line of asphalt strip and individual asphalt shingles, asbestos-cement shingles and sidings, insulated sidings, built-up roofing, roll roofings and sidings, decorative insulation board, structural insulation board and insulating wool. Specifications table for each product in the line, general information, advantages claimed. 14 pp., illus. The Flintkote Co., 30 Rockefeller Plaza, New York 20.*

STEEL DECK

Mahon Steel Deck for Roofs, Sidewalls, Partitions, Ceilings, Floors. Catalog giving full information and specifications, installation instructions, recommended applications, features. 16 pp., illus. The R. C. Mahon Co., Detroit 11, Mich.*

THERMOMETERS

Thermometers and Pressure Gauges (Catalog No. 6707). Description of a line of vapor, gas and mercury actuated thermometers and pressure gauges. Cutaway illustration

(Continued on page 178)

* Other product information in Sweet's File, 1946.

26 standard sizes

Simplify Specifications

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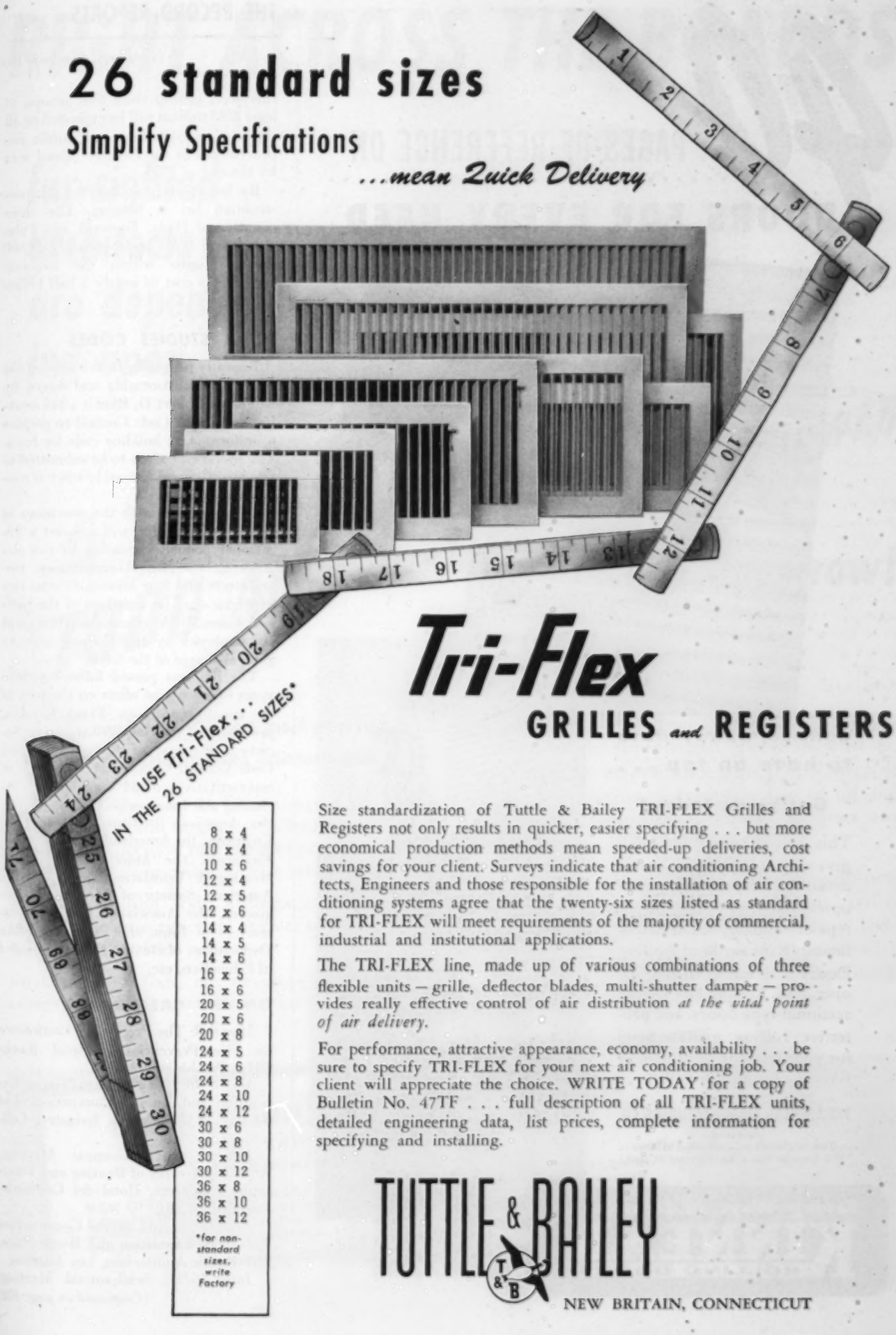

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Size standardization of Tuttle & Bailey TRI-FLEX Grilles and Registers not only results in quicker, easier specifying . . . but more economical production methods mean speeded-up deliveries, cost savings for your client. Surveys indicate that air conditioning Architects, Engineers and those responsible for the installation of air conditioning systems agree that the twenty-six sizes listed as standard for TRI-FLEX will meet requirements of the majority of commercial, industrial and institutional applications.

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For performance, attractive appearance, economy, availability . . . be sure to specify TRI-FLEX for your next air conditioning job. Your client will appreciate the choice. WRITE TODAY for a copy of Bulletin No. 47TF . . . full description of all TRI-FLEX units, detailed engineering data, list prices, complete information for specifying and installing.

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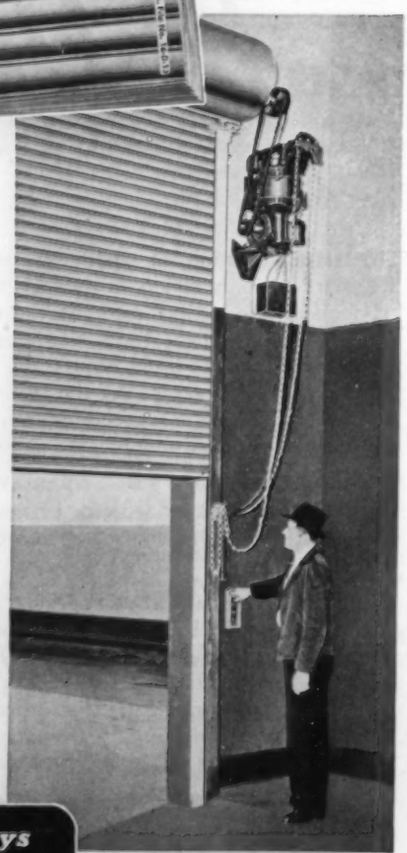

Saving Ways in Doorways
KINNEAR ROLLING DOORS

Offices and Agents in all Principal Cities

THE RECORD REPORTS

(*Continued from page 16*)

thermore, predict these four groups, at least $705 million will be expended on all types of construction and public improvements in the Greater Miami area by the end of 1951.

By far the biggest item on the construction list is housing. The three counties of Dade, Broward and Palm Beach will build approximately 73,000 dwelling units within the five-year period at a cost of nearly a half billion dollars.

IOWA STUDIES CODES

Recently passed by both houses of the Iowa General Assembly and signed by Governor Robert D. Blue is a bill creating a Building Code Council to prepare a uniform state building code for Iowa. The proposed code is to be submitted to the 53rd General Assembly when it convenes in 1949.

In accordance with the provisions of the bill, Gov. Blue will appoint a 10-member council consisting of two engineers, two general contractors, two architects and four laymen at least two of whom shall be members of the General Assembly. A technical secretary will be employed by the Council to have general charge of the work.

The bill was passed following three years of consistent effort on the part of the sponsoring groups. Frank Kerekes, president of the Iowa Engineering Society is chairman of the State Building Code Central Committee, composed of representatives of 34 organizations including the Iowa sections of the A.I.A., the American Institute of Electrical Engineers, the American Society of Civil Engineers, the American Society of Heating & Ventilating Engineers, the American Society of Mechanical Engineers, the Associated General Contractors of Iowa, the FHA, the State Department of Health, the State Board of Education, etc.

ON THE CALENDAR

May 6–8: The President's Conference on Fire Prevention, Federal Works Bldg., Washington 25, D.C.

May 6–10: 2nd National Plastics Exposition and Annual Convention, The Society of the Plastics Industry, Coliseum, Chicago.

June 2–4: Semi-annual Meeting, American Society of Heating and Ventilating Engineers, Hotel del Coronado, Coronado, Calif.

June 12–22: 2nd annual Construction Industries Exposition and Home Show, Pan-Pacific Auditorium, Los Angeles.

June 16–19: Semi-annual Meeting,

(*Continued on page 158*)

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TODD AUTOMATIC HEAT and POWER

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...maximum heat and power with minimum fuel consumption

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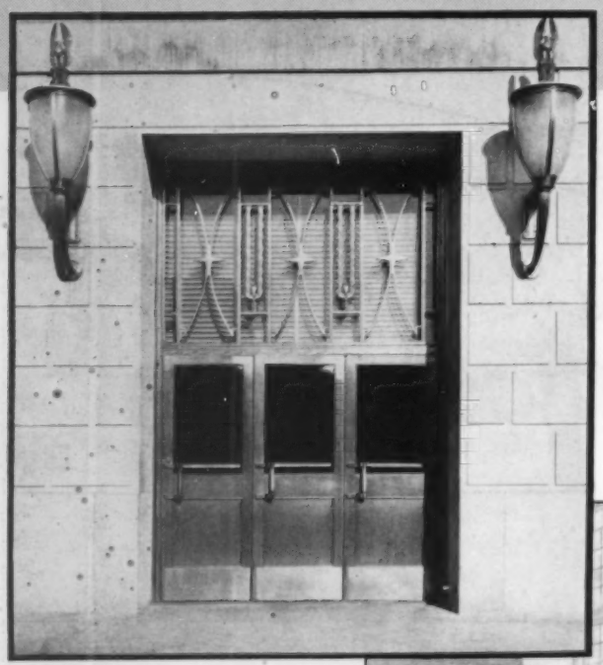
Don't Overlook
MICHAELS PRODUCTS
in Your Building Plans



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Railings (cast and wrought)
Building Directories
Bulletin Boards
Stamped and Cast Radiator Grilles
Grilles and Wickets
Kick and Push Plates
Push Bars
Wrought Iron and Bronze Lighting Fixtures
Wire Work
Cast Thresholds
Extruded Thresholds
Extruded Casements and Store Front Sash
Bronze and Iron Store Fronts
Bronze Double Hung Windows
Bronze Casement Windows

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Manufacturers since 1870 of many products in Bronze, Aluminum and other metals

THE RECORD REPORTS

(*Continued from page 156*)

American Society of Mechanical Engineers, Stevens Hotel, Chicago.

July 7–13: 1st Annual Store Modernization Show, Grand Central Palace, New York City.

Sept. 1–4: Fall Meeting, American Society of Mechanical Engineers, Hotel Utah, Salt Lake City, Utah.

Nov. 3–7: 2nd International Lighting Exposition and Conference, Stevens Hotel, Chicago.

Dec. 2–5: Annual Meeting, American Society of Mechanical Engineers, New York or Atlantic City.

COMPETITION ANNOUNCED

An architectural competition of nation-wide artistic and historic significance has been announced by the Jefferson National Expansion Memorial Association, sponsors. Prizes totaling $125,000 are offered to secure a design for a $30,000,000 federal memorial to Thomas Jefferson and the pioneers of the western expansion of the United States. Site of the memorial is 80 acres now cleared in the downtown center of the St. Louis riverfront. George Howe, F.A.I.A., has been retained as professional adviser.

The competition is to be held in two stages. Participation in the first will be open to all architects who are citizens of the United States. Participation in the second stage will be limited to five finalists named by the Jury of Award; each of the five will receive $10,000. Grand prizes at the end of the second stage will be awarded as follows: first, $40,000; second, $20,000; third, $10,000; and two honorarium awards of $2500 each.

Application blanks and complete information may be had from George Howe, Professional Adviser, The Jefferson National Expansion Memorial Competition, Old Courthouse, 415 Market St., St. Louis 2, Mo.

WITH THE A.I.A.

U.N. Committee Appointed

The A.I.A. has appointed a special committee to confer with officials of the United Nations regarding the U.N.'s urgent architectural problems. Members appointed, following a conference with Trygve Lie, secretary general of the U.N., are: Eric Gugler, chairman; Ralph Walker, and Edgar I. Williams, all of New York City.

Apprentice Training Endorsed

The A.I.A. has endorsed the federal government's efforts to expand the apprentice training program in the building trades as a means of preventing a short-

(*Continued on page 160*)

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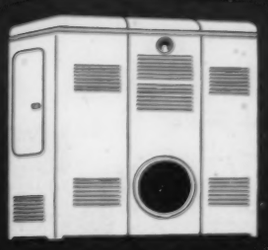
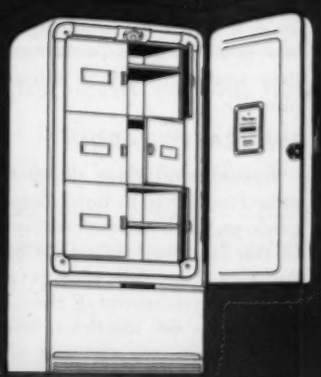


HOME HEATERS



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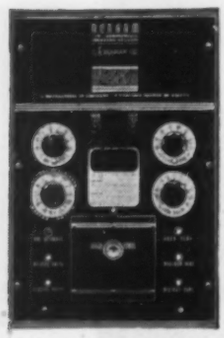
SELECTOR



CONTROL PANEL

RESISTANCE THERMOMETER

HEAT BALANCER

CONTROL VALVE

DUNHAM

HEATING MEANS BETTER HEATING

THE RECORD REPORTS

(*Continued from page 158*)

age of skilled construction workers. In a letter sent to members of sub-committees of the Senate and House Appropriations Committees which will pass on funds for apprentice training, the Institute said in part:

"We consider that the Apprentice Training Service of the Department of Labor has rendered and is rendering an invaluable service to the country in setting the pattern for, and assisting the augmentation of, apprentice training in the building trades. We also believe that the program of the Department in this respect represents a real accomplishment. It is our request that this Apprentice Training Service be continued — for the public good — and that the work so well done be recognized."

New W-E-T Bill Approved

The Taft-Ellender-Wagner housing bill has been given qualified approval by the Urban Planning Committee of the American Institute of Architects in a statement to the Senate Committee on Banking and Currency, according to an announcement by Louis Justement, chairman of the committee.

In endorsing the purpose of the bill, Mr. Justement stated that federal participation in housing is needed because neither private enterprise nor the municipalities can solve urban housing and redevelopment problems without financial assistance from the federal government. The statement approved the establishment of a National Housing Commission to coordinate government agencies having to do with housing, but suggested that the commission could function more effectively if it consists of five members rather than as set up in Title II.

The committee also suggested elimination of the section of the bill setting up new terms for financing housing for low-income families, on the grounds that they were contrary to sound mortgage practice.

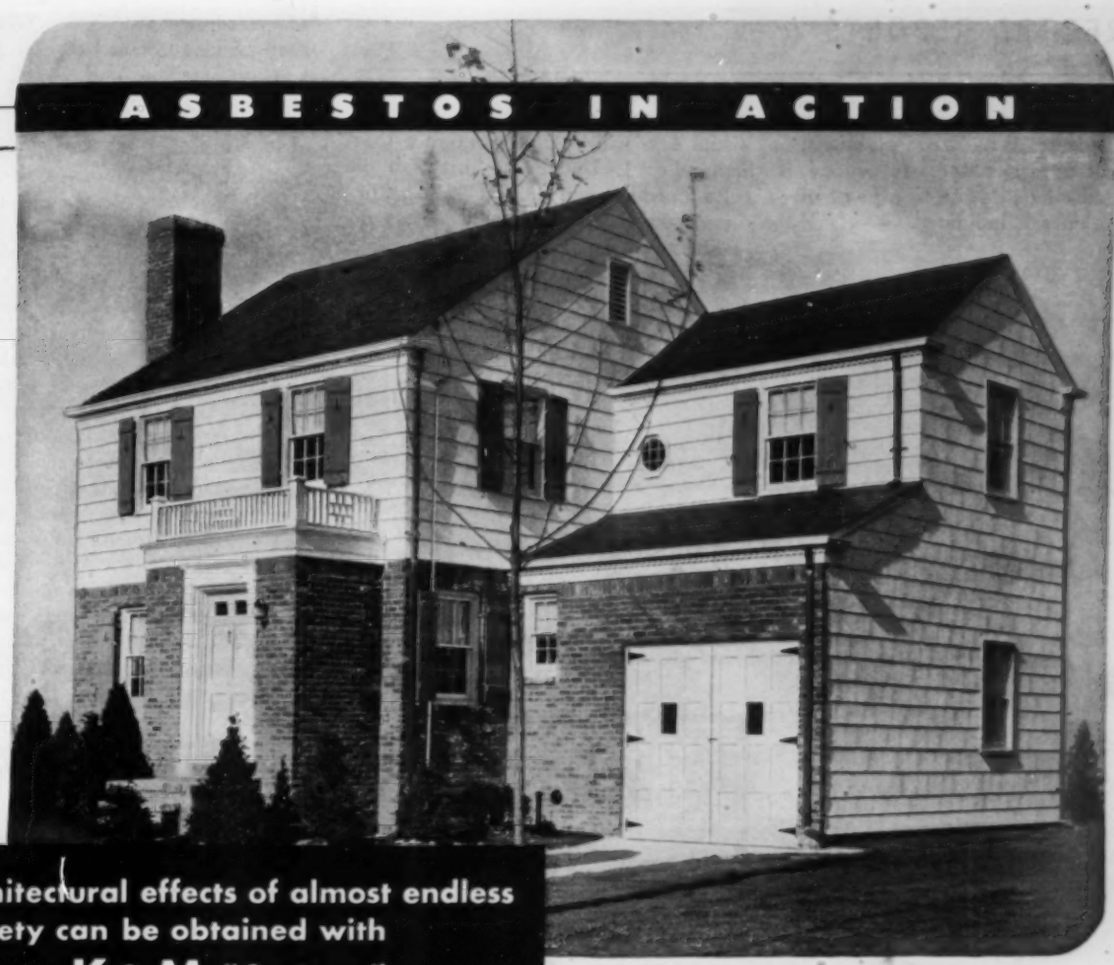
FIRE SAFEGUARDS

Recommendations designed to minimize loss of life in hotel fires have been made public by the executive committee of the Building Officials Conference of America, Inc., following review of findings and conclusions of the Conference's committee on inquiries into disasters based on an investigation of the Winecoff Hotel fire in Atlanta in December.

The Conference recommends, among other things: (1) the elimination or sealing of transoms in hotel guest rooms; (2) the protection of all floors by supervised watchmen's services, in lieu of adequate fire protection equipment provided with

(*Continued on page 162*)

ASBESTOS IN ACTION



Architectural effects of almost endless variety can be obtained with

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Yet beauty and adaptability are but two of many factors that have made K&M "Century" Siding Shingles so popular among architects. Neither rain, hail, snow nor temperature extremes adversely affect them. They are proof against fire, rot, rodents, termites and other destroyers. They require no protective paint and no maintenance. Being made of asbestos fibres and portland cement, they actually grow harder with age.

K&M "Century" Siding Shingles are supplied in color-fast shell white and gray tone . . . in quickly-applied 24" widths with straight or wavy butt line styles.

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automatic transmission of alarm to the fire department; (3) and the installation of fire vent flues and ducts to conduct superheated air and gases to a point of dissipation outside buildings.

AT THE COLLEGES

Fontainebleau Schedule

The Fontainebleau School of Fine Arts, Fontainebleau, France, has announced that its 1947 Summer School for Advanced American Students in the Visual Arts will be held from July 1 to September 1. Under the direction of Jules Formigé and Jean Labatut, the summer session will include courses in architecture, painting, mural painting and fresco, sculpture and applied arts. Jean Labatut will serve as professor, and Georges Legendre as assistant professor of architecture.

Requests for further information and applications for admission should be addressed to the New York office: Fontainebleau School of Fine Arts, 206 E. 62nd St., New York 21, N. Y.

Junior A.I.A.'s at Pratt

Thirty-three junior and senior students of the Department of Architecture, Pratt Institute, Brooklyn, N. Y., were inducted as members of the newly organized Student Associate Branch, Brooklyn Chapter, The American Institute of Architects, in the course of the Chapter's first joint meeting with the students held on February 25th.

The student group was organized by the A.I.A. chapter for fostering of fellowship and promoting cooperation and a spirit of unity between students of architecture and practicing architects, and to provide a means of intercourse between active members of the chapter and the students. Activities planned include inspection trips to new building projects, aid in finding employment under the mentor system, and discourses on architectural subjects by distinguished members of the profession. Membership in the student association is open to all junior and senior students who attend recognized schools of architecture in Brooklyn or who are residents of Brooklyn. Draftsmen students of architecture who either reside in or are employed in Brooklyn are also eligible. Students who are interested in joining the group should communicate with Allan G. McTaggart, 26 St. James Pl., Brooklyn 5, N. Y.

Plastics Research

The College of Engineering of the University of Illinois and the Plastics Division of Monsanto Chemical Company have announced renewal for the third year of a contract wherein Monsanto provides funds for a fundamental research program on the dynamic fatigue characteristics of plastics. The research, under the direction of Prof. William N. Findley of the Department of Theoretical and Applied Mechanics, is intended to provide a better knowledge of the behavior of plastic materials under cyclic stresses, and to aid in choosing the best test methods for use in studying the fatigue properties of these important materials.

Lumber Yard Training

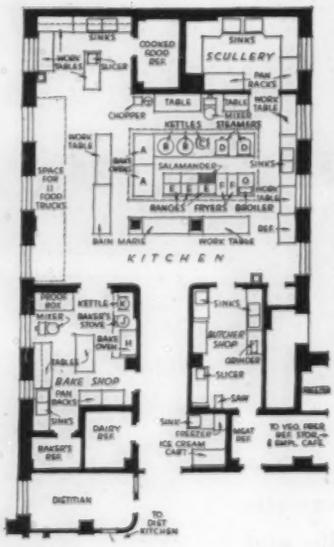
A reduction in the cost of building and better service to builders and buyers of homes and other new construction will result from the special training courses for employees of retail lumber yards which are being conducted at 13 leading colleges and universities. The four-week courses are sponsored by the Producers' Council and the National Retail Lumber Dealers Association, and are open to present and prospective employees of retail building materials concerns and to

(*Continued on page 164*)

KITCHEN PLAN NO. 42: Forty-second of a series of successful mass-feeding plans.

The new 650-bed George Washington Memorial Hospital, Washington, D. C. is "Specialized Cooking Tool" equipped, not alone to furnish efficient food production, but also to promote cleaning-ease and fatigue-elimination.

KEEP FOR HANDY REFERENCE!



COOKING EQUIPMENT USED:

Main Kitchen:

(a) 2 No. 989 BLODGETT GAS-FIRED ROASTING OVENS
(b) 2 Stock Kettles
(c) 1 Trunnion Kettle
(d) 2 Vegetable Steamers
(e) 3 Open Top Gas-fired Ranges, with one Gas-fired Ceramic Salamander
(f) 2 Gas-fired Deep Fat Fryers
(g) 1 Gas-fired Broiler

Bake Shop:

(h) 1 No. 982 BLODGETT GAS-FIRED BAKE OVEN
(j) 1 Gas-fired Confectionery Stove
(k) 1 Trunnion Kettle

Installed by W. F. Dougherty & Sons, Philadelphia, Pa.

Efficient production of food, the highest standards of sanitation, the easiest working conditions, result from the use of Specialized Cooking Tools. In this plan the two No. 989 Blodgett Ovens in the cooking bank provide 55.8 square feet of meat and vegetable capacity — equal to 13 sections of ranges. The bake shop is equipped with Blodgett's flexible, 8-pan, 2 section oven with four decks. The No. 989's are used for meat and vegetable preparation — an increasingly popular oven adaptation

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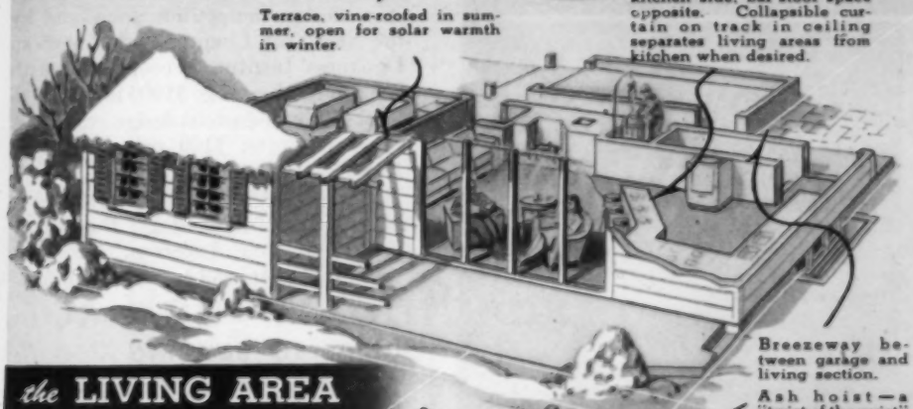
What — ALL THIS IN A SMALL HOME ??

the HOUSE

Terrace, vine-roofed in summer, open for solar warmth in winter.

Snack bar with cupboards on kitchen side, bar stool space opposite. Collapsible curtain on track in ceiling separates living areas from kitchen when desired.

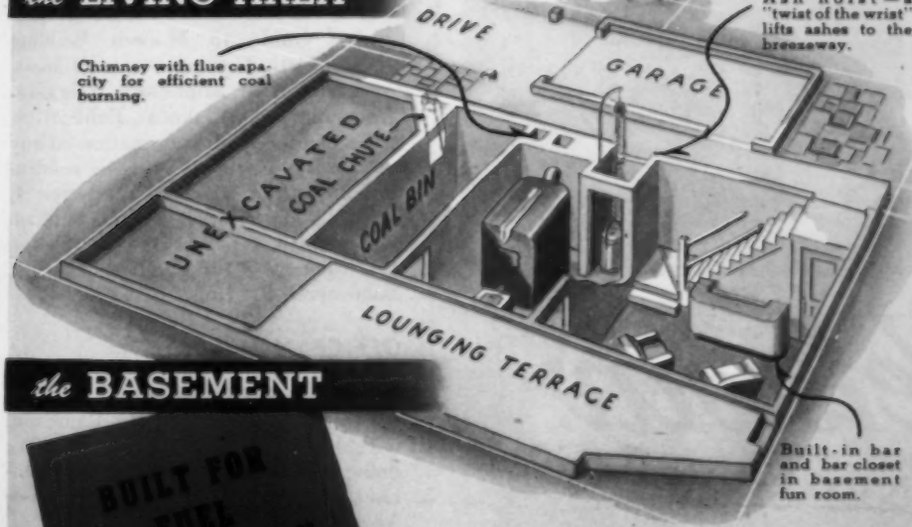


the LIVING AREA

Breezeway between garage and living section.

Ash hoist—a "twist of the wrist" lifts ashes to the breezeway.

Chimney with flue capacity for efficient coal burning.



the BASEMENT

Built-in bar and bar closet in basement fun room.

Right! This compact little "castle" has all the "modern living" advantages of a larger home—it's easy to look at, easy to live in and easy to build. And because every foot of space has been put to use, this home can be built on a small lot!

The designer of this house put a lot of smart ideas into it — and none is shrewder than the provision made for coal heating. This foresight allows the owner at the outset to heat by any fuel he chooses — but prevents his home from being "cut adrift" should he want to convert to coal later, when stoker developments, cost differentials or scarcity of other fuels convince him of the advantages of Bituminous coal. This little home has a chimney with a flue capacity sufficient to burn coal efficiently, and sufficient space for immediate or eventual stoker installation and coal storage. When the owner makes this installation and uses coal — Fuel Satisfaction — he has not "painted himself into a corner!"

Initial Cost Economy. A hand-fired coal furnace costs less than any other method.

Automatic Heat. Coal stoker cost is low.

Automatic Heating. Over a period of time, the cost of stoker heating is no greater than any other automatic plan. Economy of fuel is the difference.

Clean, smokeless fuel. Coal is sized, cleaned and dustproofed at the mine.

Other fuels may become scarce—but there is coal to last 3,000 years!

Norfolk and Western Railway

CARRIER OF FUEL SATISFACTION

employees of concerns manufacturing and wholesaling materials.

The curriculum includes study of individual materials and their uses in construction, blueprint reading, estimating, site construction, purchasing, etc.

The courses have been approved by the Veterans' Administration for the training of veterans under the G.I. Bill of Rights. They call for 30 hours of classroom instruction per week, with field trips. Institutions giving the instruction are: University of Illinois, Urbana, Ill.; Massachusetts State College, Amherst, Mass.; Michigan State College, East Lansing, Mich.; New York State College of Forestry, Syracuse University, Syracuse, N. Y.; Ohio State University, Columbus, Ohio; Purdue University, West Lafayette, Ind.; University of Washington, Seattle 5, Wash.; University of Wisconsin, Madison, Wis.; Southern Methodist University, Dallas, Tex.; Louisiana State University, Baton Rouge, La.; Georgia Tech, Atlanta, Ga.; City College of New York, New York 19, N. Y.; and College of the Pacific, Stockton, Calif.

HOW TO MEET THE DEMAND FOR SEPARATE SHOWER BATHS

Survey's show more than half the families planning to build want separate shower baths.

You can meet this rapidly growing demand by specifying Weisway Cabinet Showers.

Precision-built, leakproof Weisways are made in models suitable for homes in every price class.

Weisway
CABINET SHOWERS

Product of the pioneer manufacturer in this field, Weisways offer a thoroughly satisfactory answer to the insistent demand for separate shower baths. Quality-proved and service-tested through years of actual use, Weisways insure the owner's satisfaction, protect your reputation . . . you specify Weisways with assurance. Write now for detailed information about Weisway features, including the vitreous porcelain receptor with exclusive "foot-grip, no-slip" floor.

HENRY WEIS MFG. CO., INC., 503 OAK ST., ELKHART, IND.

HOME DRIVE ON

A nation-wide drive to erect a large number of low- and moderate-priced rental housing projects for veterans was started on March 31 with the first of a series of meetings in which builders with outstanding records in rental construction will advise local home builders on the best methods of planning, financing and constructing rental projects. More than 100 local home building associations affiliated with the National Association of Home Builders are pledging support of the rental housing drive.

AWARDS ANNOUNCED

Results have been announced of the store design competition sponsored by the New York Chapter of the American Designers' Institute in cooperation with Garrison's Magazine: $1000 first prize to Paul Canin, industrial design student at Pratt Institute; $100 prizes to Anna Ruth Bonk, Paul Wrablich and Pamela Dohner, George H. Fitzsimonds and Max C. Hanenstein, Harry David Gutmaker, Weston Anderson. The prize winning designs will be shown throughout the country.

GUIDE TO BUILDING

The Walker Art Center of Minneapolis is assembling material for a comprehensive Guide to Modern Building in the North Central States (Illinois, Iowa, Wisconsin, Minnesota, Nebraska, North and South Dakota). Publication is planned for 1948. Information on any modern building in the area — residential, industrial, commercial or civic — would be appreciated. Address William M. Friedman, Assistant Director, Walker Art Center, 1710 Lyndale Ave. S., Minneapolis 5, Minn.

OFFICE NOTES

Offices Opened, Reopened

Brother Cajetan J. B. Baumann, O.F.M., A.I.A., has opened an office doing architectural work for the Franciscan Order at 44 Whitehall St., New York 4, N. Y.

Richard E. Bishop, Architect and Planner, has opened an office at 401 Board of Trade Bldg., Indianapolis 4, Ind.

George J. Cavalieri, A.I.A., formerly chief architect, FHA, has resigned from government service to resume the general practice of architecture in association with Anthony M. DeRose, A.I.A., under the firm name of DeRose & Cavalieri, Architects. Address, 370 E. 149th St., New York 55, N. Y.

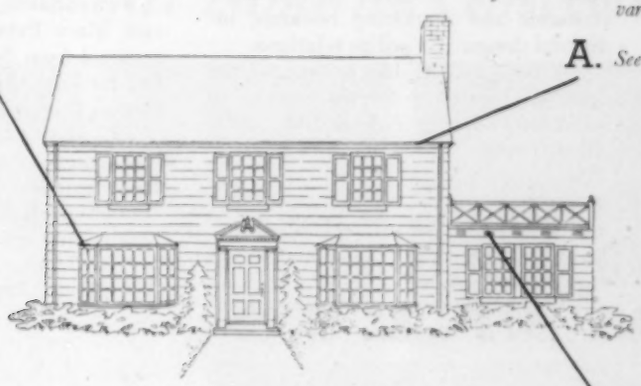
(*Continued on page 166*)

Q. *What is the effective technique for insulating the narrow spaces around windows and air ducts?*

A. *See Balsam-Wool Application Data Sheet Section C No. 1.*

Q. *What are the thermal resistance values of various building materials?*

A. *See Balsam-Wool Data Sheet Section A No. 4.*

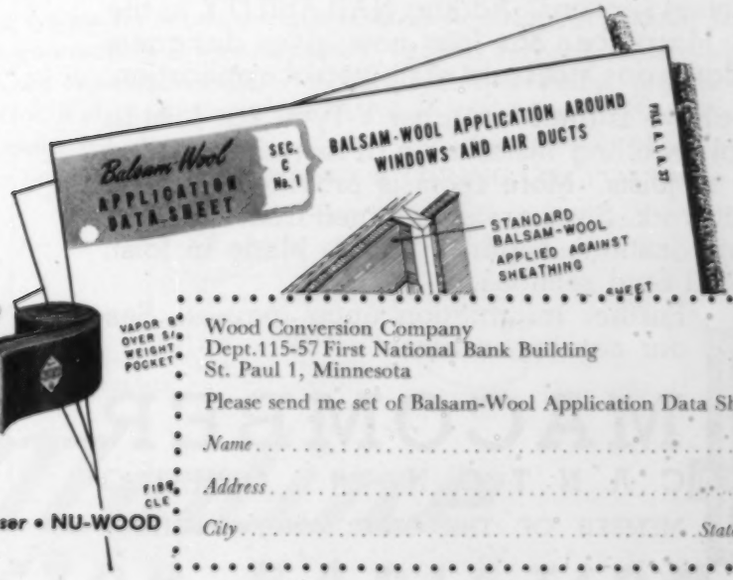


Q. *What methods can be used to ventilate flat-roofed construction effectively?*

A. *See Balsam-Wool Data Sheet Section B No. 5.*

Quick Facts for Busy Architects . . . Balsam-Wool Data Sheets

Through its twenty-five years of experience, Wood Conversion Company has collected a wealth of valuable information on applying insulation. This information is embodied in a series of Balsam-Wool Application Data Sheets. These sheets are offered to you without cost or obligation. Mail the coupon for your set!


Balsam-Wool
APPLICATION DATA SHEET
SEC. C No. 1
BALSAM-WOOL APPLICATION AROUND WINDOWS AND AIR DUCTS
STANDARD BALSAM-WOOL APPLIED AGAINST SHEATHING

Balsam-Wool

SEALED INSULATION

BALSAM-WOOL • *Products of Weyerhaeuser* • NU-WOOD

Wood Conversion Company
Dept.115-57 First National Bank Building
St. Paul 1, Minnesota

Please send me set of Balsam-Wool Application Data Sheets.

Name .....

Address .....

City ..... *State* .....

THE RECORD REPORTS (*Continued from page 164*)

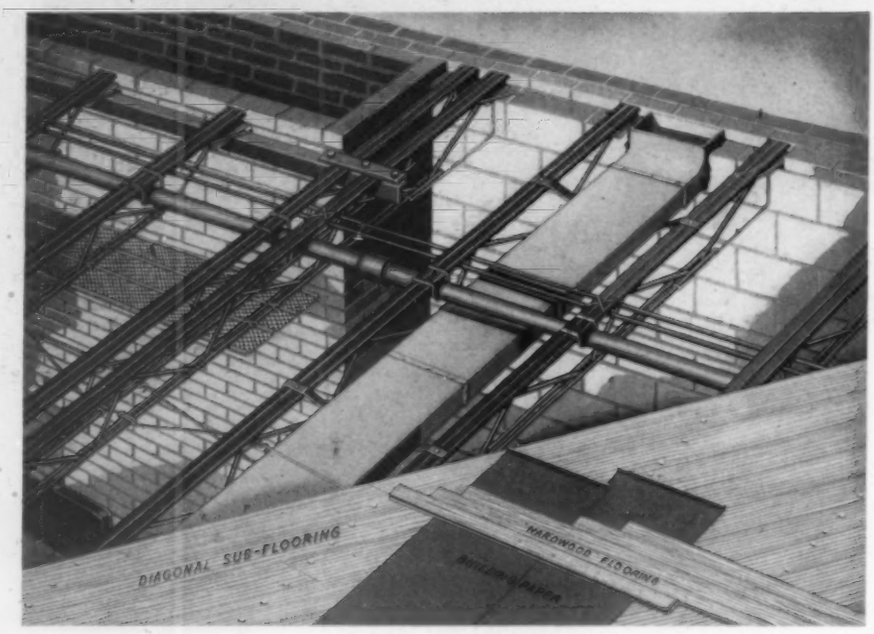
Ethelbert E. Furlong, Landscape Architect and Site Consultant, has reopened his office in the practice of land planning and site engineering at 93 Baldwin St., Glen Ridge, N. J.

Gordon Obrig Associates, Inc., 7 E. 48th St., New York 17, N. Y., have announced a complete design and detail service for commercial, industrial and home fields.

Leo H. Rich, associated with the Walter Dorwin Teague industrial design firm from 1942 to 1946, has announced the organization of his own company, Leo H. Rich Incorporated, with offices at 1 Wall St., New York 5, N. Y. The new firm will offer business clients a three-point "package program" of correlated economic and marketing research, industrial design and public relations.

Zeb Rike, A.I.A., has announced the opening of an office for the practice of architecture in the Nelson Bldg., McAllen, Texas.

STEEL JOISTS AND STUDS
YOU CAN NAIL INTO LIKE WOOD



PATENTS PENDING

Builders everywhere have welcomed these improved steel sections. Adding NAILABILITY to the original Macomber Bar Joist now gives designers and builders one steel joist of universal application.

Shown above is the Macomber V-Type Bar Joist in a typical dwelling installation. Flooring is nailed directly to joists. More room is provided for pipe and duct work. Sizes are determined from standard Steel Joist Institute Loading Table. Made in Joist, Purlin and Stud sections.

Further information upon request. See our catalog in Sweet's 1947.

MACOMBER
CANTON • OHIO
MEMBER OF THE STEEL JOIST INSTITUTE

New Addresses

The following new addresses have been announced:

Jo Sinel, Design for Industry, 561 Clay St., San Francisco 11, Calif.

Lyle Swiger, Architect, 307 First National Bank Bldg., Newport News, Va.

Firm Changes

Walter Baermann, industrial designer, and Marc Peter, Jr., architect, have resigned from Norman Bel Geddes and Co. to form the new industrial design firm of Baermann and Peter. Address, 317 E. 51st St., New York 22, N. Y.

Joseph Norman Hettell has announced the formation of a partnership with Wm. Kendall Albert for the practice of architecture under the firm name of Joseph Norman Hettell and Wm. Kendall Albert, Architects, with offices at 501 Cooper St., Camden, N. J.

Sylvester Leroy Smith, Architect, and Judson F. Vogdes, Jr., Engineer, have taken offices for general practice at 315 Broad St. Station, Philadelphia 2, Penn. Mr. Smith has discontinued his office at 250 North 15th St.

ELECTIONS

New officers of the California Council of Architects are: *president*, Vincent Palmer; *vice president*, Andrew Hass; *secretary-treasurer*, A. C. Martin, Jr.

The Asphalt Tile Institute has announced the election of the following officers: *president*, H. Dorn Stewart, Armstrong Cork Co.; *vice president*, J. O. Heppes, The Tile-Tex Co.; *secretary-treasurer*, C. A. Neumann, David E. Kennedy, Inc.

The Westchester Chapter, A.I.A., has elected the following officers: *president*, Edward Fleagle; *vice president*, Oscar A. deBogdan; *secretary*, Lusby Simpson; *treasurer*, John M. Paul.

APPOINTMENT

Carroll J. Peirce, Jr., chief of aerodynamics for the Boeing Airplane Co., Wichita, Kansas, has been appointed director of the Ohio State University School of Aviation.

ADDENDUM

Otto Vogt should have been credited as structural engineer for the Valley Avenue Apartments, Berla & Abel, Architects, appearing in the March ARCHITECTURAL RECORD, pp. 100–101.

ERRATUM

In the article, "Comparative Costs in Apartment Heating" in the March RECORD the footnote on page 109 should have read: "The original 'Metro' system was developed for Parkchester Apartments, Bronx, N. Y.; installed under direction of Henry C. Meyer, Jr., of Meyer, Strong, and Jones, Inc.; patent held by Henry G. Schaefer."

TWO KINDS OF HEAT IN ONE GREAT MODERN BLEND!

– that's what Modine Convectors offer you!

1

RADIANT HEATING

Mild, radiant heat in just enough quantity to offset heat loss from window areas — that's what those arrows represent, coming from the Modine Convector Panel below the window. To this we add . . .

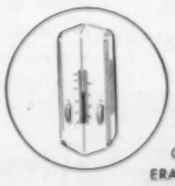
2

CONVECTION HEATING

Warmed air circulated by Convection Heating. Hot water or steam passes through copper heating unit which draws cooler, floor-line air into bottom of convector where it's warmed, rises and then passes out through grille.

Result: A modern, blended heating system for modern winter comfort — whether it's school, hospital, home or apartment! A heating system that gives you individual room control . . . gentle, draft-free air circulation without the use of moving parts that wear out! Yes, the dependable heating comfort, distinctive charm, space saving, cleanliness, and long service life of Modine Convector Radiation is recommended for all types of residential and institutional heating needs. Look for Modine's representative in the "Where to Buy it" section of your phone book. Write for complete information and free descriptive literature. MODINE MANUFACTURING CO., 1773 Racine St., Racine, Wis.

MODERN BEAUTY



CLOSE TEMPERATURE CONTROL

EASY TO INSTALL

ADDS TO LIVING SPACE

PRICED FOR TODAY'S HOMES AND APARTMENTS

Modine

CONVECTOR RADIATION

The Modern "proved by use" heating method

ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

(*Continued from page 147*)

SLIDING DOOR UNIT

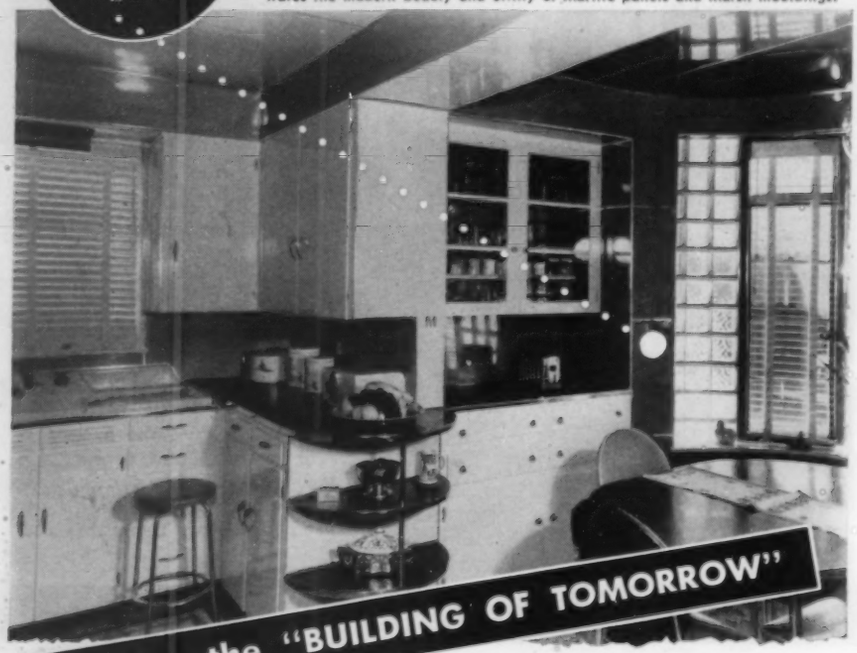
A new type of sliding door unit, known as the *Glidaway*, works without rollers and is designed for 4-in. walls and for both single- and double-pocket openings. Any design of door, either flush or paneled, may be adapted to the frame provided thickness is not more than 1⅜ in. Frames are available in a range of stock sizes to fit various door widths and heights. U. S. Plywood Corp., 55 W. 44th St., New York 18, N. Y.

PLASTICS

The New York sales-engineering and executive offices of Bakelite Corporation have been remodeled to show to best advantage the many uses of Bakelite and Vinylite plastics for room interiors. Throughout the offices these plastics appear in the form of decorative laminates with wood veneer surfacings, resin-bonded plywood, molded floor tiles, resin-fortified wood lacquers, flexible film and sheeting for draperies, and resin-coated fabrics for chair and wall coverings. The rooms, designed by Walter Dorwin Teague, consist of a display lobby, conference rooms, and a number of offices, each stressing the different color combinations and varying treatment possible with these plastics, which reportedly offer advantages of enduring finish, resistance to water and wear, and fire resistance. Bakelite Corp., 300 Madison Ave., New York 17, N. Y.

Plastics featured in remodeled offices

Beautiful kitchen in the home of George Leikert, Detroit, Michigan, illustrates the modern beauty and utility of Marlite panels and Marsh mouldings.



. . . for the "BUILDING OF TOMORROW"

Appealing beauty and economical utility are characteristics of the "Building of Tomorrow," designed for better living. Versatile Marlite plastic-finished wall and ceiling panels, adaptable to every type of construction, provide colorful interiors that are at once pleasing and serviceable. Marlite seals in beauty, seals out dirt and grime, is quickly installed, easy to keep clean. Plan now to make the most of Marlite, designed for the "Building of Tomorrow." Marsh Wall Products, Inc., 505 Main Street, Dover, Ohio.

For Creating Beautiful Interiors

Marlite
PLASTIC-FINISHED
WALL PANELS

UNIT HEATERS

Electric unit heaters are used to carry the entire heating load at a large flour mill in Chattanooga, Tenn., where power rates are comparatively low. The mill is heated 24 hours a day, seven days a week, during the winter months. Located strategically throughout the plant are 50 *Electromode* heaters ranging in capacity from 7.5 to 20 kw. and equipped with thermostatic controls. The connected load for the mill's 598,650 cu. ft. is 655.5 kw. Complete protection against fire and explosion hazards is claimed because of the patented enclosed construction of the heating element. There are no exposed glowing wires since the resistor is insulated and encased in a tubular sheath, which in turn is embedded in a one-piece finned aluminum casting. Electromode Corp., 45 Crouch St., Rochester 3, N. Y.

ROOF VENTILATOR

A new attic or under-roof space ventilator is designed for hip or 4-sided roofs. It is all-steel, and welded into the shape of a graceful curve. Lower part of the ventilator opening is equipped with a baffle to exclude weather, and the 36-in. free area is covered with an insect screen. Integral flashing is said to permit weather-tight installation. The Swartwout Co., Cleveland, Ohio.

ALUMINUM WINDOW

The *Winco Ventilating Window* can be opened in the conventional way by raising the sash, or it can be placed in the ventilating position by tilting the lower section inward like a transom. A metal

(*Continued on page 170*)

STAINLESS STEEL

and now– SCREENS

Another outside job has been taken over by the metal that has given permanent beauty to everything from kitchen sinks to building trim. Home owners are installing stainless steel screens for their windows, doors, and porches. They've found that the stainless steel screens do not stain any painted surface beneath them, though many times soaked by rain. And they resist denting and tearing, too. If you would like to keep informed about the many other uses for stainless steel in the home, ask to receive our monthly publication ELECTROMET REVIEW. Write to Department A-5.

ELECTRO METALLURGICAL COMPANY
Unit of Union Carbide and Carbon Corporation
30 East 42nd Street UCC New York 17, N. Y.

PRODUCERS OF ALLOYS THAT MAKE STEEL STAINLESS

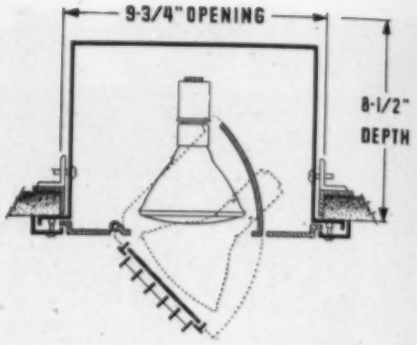
Beautiful Enduring Strong Tough

(*Continued from page 168*)

screen, hinged to swing outward, is provided, and can be interchanged with an aluminum storm sash. The window frame and sash are made entirely of aluminum, and weigh 14 lb. Finish is etched and coated with clear lacquer. The window comes as a packaged unit, complete with brick stops, necessary hardware, locks and lifts, weather-stripping, stainless steel wings, and glass in the lower sash set in a rubber extrusion. Watco Engineering Inc., Cleveland 13.

CABINET INSERTS

The *Dual Purpose Shelf* is a slotted insert for medicine cabinets, designed for compact storage of toilet articles, shaving equipment, and other items that customarily clutter bathroom shelves. Inserts are installed by adjusting for shelf width and sliding within the cabinets where they are held in place by rubber cushion ends. The Modernwise Cabinet Co., 5404 Fourth St., N. W., Washington 11, D. C.



Lamp housing permits directed lighting

DIRECTED LIGHTING

Rotobeam, a touch-directed lighting aid, is designed to afford new freedom in display lighting. A PAR spot or floodlight is provided in an adjustable housing of cast aluminum and steel for recessed installation in walls, ceilings, or floors. Direction of the beam can be changed by rotating the disc and by tilting the housing on its concealed pivot hinge at any angle up to 45°. General Lighting Co., 32 Union Square, New York 3, N. Y.

DAMPPROOFING

Recently announced was *Barriercoat*, a new moisture-, vapor-, and corrosion-resistant coating for wood, metal, and concrete. It has a bituminous gum base carried in a petroleum solvent, and is applied by brushing, spraying, or troweling. No heating is required. After application, the solvent evaporates, leaving a resilient base coating. Barriercoat is usually supplied in black, but may also be obtained in maroon, green, or aluminum color. Carbozite Protective Coatings, Inc., Greensburg, Penn.

ALUMINUM BUILDING PRODUCTS

Reflective insulation is said to be provided to a high degree by aluminum siding and shingles. Clapboard siding is available in 12-ft. lengths, either plain or textured, and weighs about 5 lb. The siding is .032 in. thick, formed with a butt thickness of 13/16 in., which gives a heavy shadow line. Accessories are starter strip, butt joint, outside corner caps, and inside and outside corner posts. The aluminum shingles are designed to provide an air space between their under surface and the sheathing for better insulation; and their sides interlock to provide a weathertight seal. There are no exposed nails. The bungalow-size shingle measures 5½ by 18½ in.; the master-size, 8 by 14½ in. Both shingles and siding may be painted if desired. Reynolds Metal Co., Building Products Div., Louisville 1, Ky.

(*Continued on page 172*)

BARBER-COLMAN RADIO CONTROL for GARAGE DOOR OPERATORS

The elegant Mrs. Giltrox has a button to buzz for her butler, and the wealthy Mr. Giltrox has a battery of them for his staff of glamorous secretaries — but here is a button that plain Mrs. Bill Jones (and thousands of other Mrs. Joneses and Smiths and Browns) can have. It will bring these charming, hard-working, family-raising folks a sensational service and convenience — *and at surprising low cost.* It is the button in their car that they push to open the garage doors!

TIME-PROVED — DEPENDABLE

Barber-Colman developed the original model of the Radio Control for Garage Doors over twenty years ago. Through an important period of redesign, simplification, and improvement, the current Model C was evolved and introduced about ten years ago. Hundreds of satisfactory installations have been made, and further refinements added from time to time. Today you can buy this reliable, time-proved, trouble-free unit and count on it to perform properly and accurately for you through many years of satisfactory service.

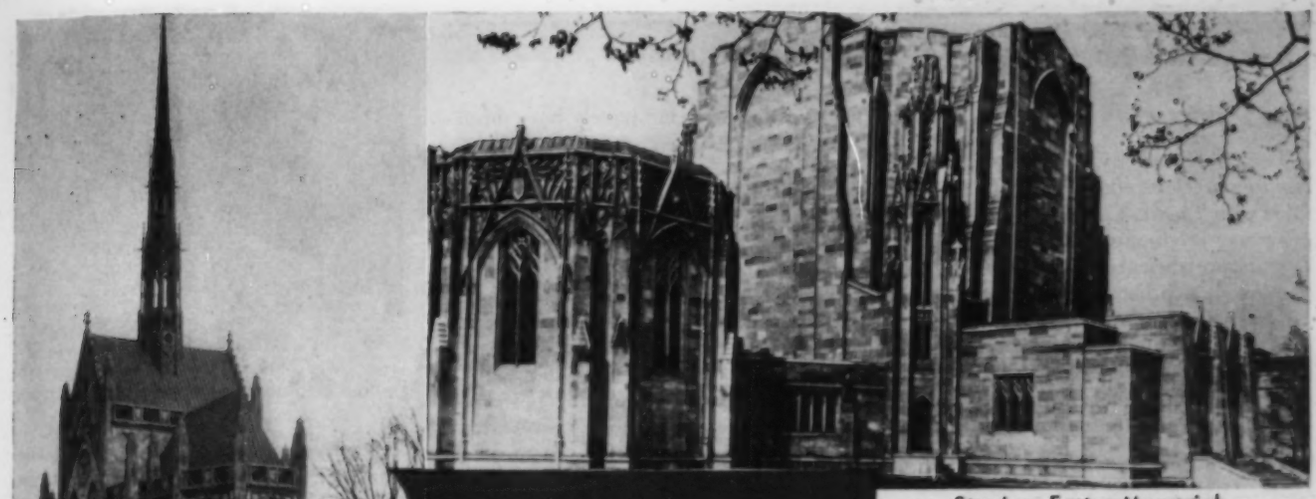
UNDIVIDED RESPONSIBILITY — SINGLE SOURCE FOR DOORS AND OPERATORS

Another important feature — Barber-Colman makes not only the Radio Control, but also the doors (Barcol OVERdoors) and the Electric Door Operators. So, when planning a garage installation, you can get *all the necessary elements from a single source.* This means that one well-established firm will assume responsibility for proper construction, installation, operation, and service — a vital factor in the solution of today's home-building problems.

See our Catalog in Sweet's.

FACTORY-TRAINED SALES and SERVICE REPRESENTATIVES IN PRINCIPAL CITIES

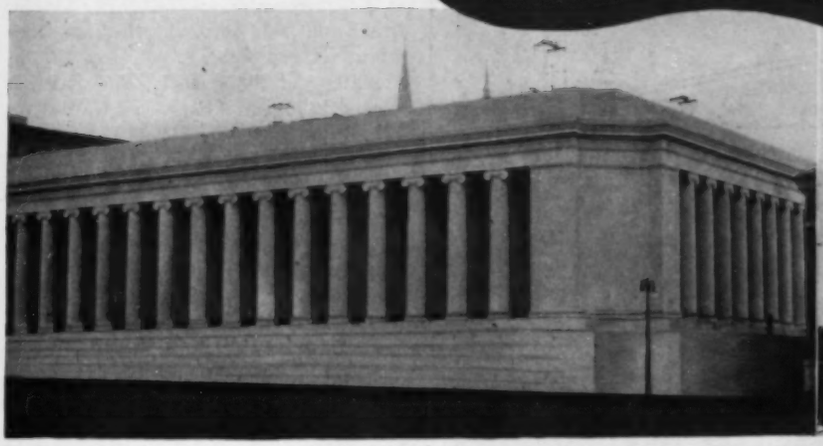
BARBER-COLMAN COMPANY
102 MILL ST. • ROCKFORD, ILL.



Stephen Foster Memorial

HANDSOME IS as HANDSOME DOES

Heinz Memorial Chapel



Mellon Institute

Cathedral of Learning

District Heating simplifies building design, provides more usable space at lower operating and maintenance costs

No ugly stacks mar the beauty of this group of buildings at the University of Pittsburgh. Unhampered by the necessity of allotting space for heating units, fuel delivery and storage, and ash removal, designers enjoyed full freedom of line for beauty, while providing maximum utility for every foot of space in these fully functional structures.

District heating made it possible. Distribution is currently being extended to include a large group of hospital buildings. The system also effects savings in fuel consumption, reduction in required maintenance personnel, and greater protection from fire and explosion. Because it eliminates the production of smoke and soot in the area, cleanliness and lasting beauty are assured for every building in the group.

In this instance, as in hundreds of other major central heating systems, Ric-wiL conduit provides efficient, economical heat distribution.

RIC-WIL INSULATED PIPE CONDUIT SYSTEMS
THE RIC-WIL COMPANY • CLEVELAND, OHIO
AGENTS IN PRINCIPAL CITIES

ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

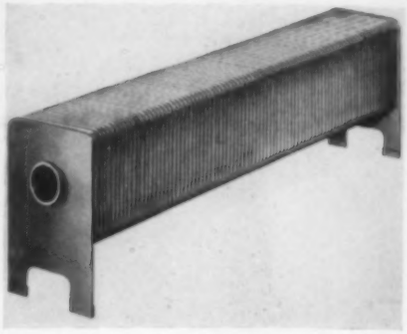
(*Continued from page 170*)

PANEL SYSTEM

The patented system of *Thermo-Namel* porcelain enameled steel panels filled with *Thermo-Con* expanded cellular concrete, originally developed for the Higgins prefabricated house, can soon be employed in other house construction. Under the marketing scheme under study, an architect can design a house and through the contractor order Thermo-Namel panels from the Higgins dealer in his community. When the interior and exterior panels have been set in place upon the foundations, Thermo-Con is then poured between, where it expands and hardens to form a monolithic structure. Higgins, Inc., New Orleans, La.

CONVECTORS AND RADIATORS

Magna-Fin convectors and radiators, though comparatively light in weight, are designed for heavy duty performance, operating on steam or hot water.



Finned radiator conserves floor space

The convectors are made of either steel or copper tubing with steel or aluminum fins tightly secured to the tube without solder or brazing. Steel fins are .036 in. thick and aluminum fins, .032 in. The tube wall reportedly will withstand pressures up to 200 lb. Convector units are furnished in six standard lengths: 2, 4, 6, 8, 10, and 12 ft. The radiator is of all-steel construction and features high-heating capacity, light weight, and compactness. Fins are fabricated of heavy-gauge steel, .048 in. thick. Space requirements are small: a radiator of 30 E.D.R. capacity is 8 in. high, 5⅛ in. wide, and 54¾ in. long. Radiators are manufactured for 5 capacities: 10, 13, 17, 20, and 30 E.D.R. The Rittling Corp., 1292–1298 Niagara St., Buffalo 13, N. Y.

STEEL WINDOWS

Two new types of steel windows are now being manufactured for commercial and general utility buildings. The utility window, 3 ft. 6⅝ in. high and 2 ft. 8⅞ in. wide, is constructed with a horizontal top section that opens inward. A spring-locking device with a wire-pull rail attachment is said to simplify its opening and insure weather-tight closing. The commercial projected steel window has a ventilator section that swings outward from the bottom and downward from the top. The absence of projections into the building allows free passage next to the windows. When installed in tandem, a mullion, 3 in. wide, provides positive anchorage without sacrificing light. The window is available in six sizes. Copco Steel and Engineering Co., 14035 Grand River Ave., Detroit 27, Mich.

FLUORESCENT HOLDERS

Recently announced are improvements in fluorescent lampholder design to eliminate the danger of cracked sockets, faulty contact, and falling lamps. A spring-action plug holds the lamp so that it cannot be released without the application of pressure; guides prevent the incorrect insertion of lamps and breakage of sockets; and new

(*Continued on page 174*)

IMPLEMENT OF ARCHITECTURE

All the natural beauty of the solid metals of Schlage Locks is brought forth by Schlage's carefully controlled finishing techniques. Since Schlage brass, bronze and aluminum finishes are part of the base metals (not plated), durability is assured. There are many finishes from which to choose, including Schlage's exclusive aluminum "Luster-Sealed" finish which retains its satin silver appearance indefinitely without tarnishing.

SCHLAGE
LOCK COMPANY
SAN FRANCISCO • NEW YORK
ORIGINATORS OF THE CYLINDRICAL LOCK

FREE! This 96-page book...

to celebrate our 50TH ANNIVERSARY 1897–1947

We have printed a special anniversary edition of this invaluable book for business executives, architects, contractors and engineers. This 96-page book summarizes our unique and extensive experience in the protection and decoration of structures after 50 years of manufacture and service. In that time we have faced and solved many problems on thousands of projects, involving every industry, every variation in climate and almost every known condition.

CONTENTS

HOW TO SOLVE MANY CONSTRUCTION AND MAINTENANCE PROBLEMS

■

- CONSTRUCTION DETAILS
- MATERIAL TABLES
- WEIGHTS AND MEASURES
- HORN PRODUCTS AND METHODS

Here is a book giving you engineering data and specifications to help you solve many problems of waterproofing, dampproofing, painting, caulking, roofing and flooring. You may have this reference book with our compliments. Naturally, the edition is limited, first requested, first served. Write today—

WRITE ON YOUR BUSINESS LETTERHEAD

A. C. HORN COMPANY, INC.
43-35 Tenth Street
Long Island City 1, New York

KEEP THOSE CONCRETE EXPANSION JOINTS SEALED ALL YEAR 'ROUND!

SPECIFY

THE ORIGINAL
Para-Plastic
REG. U. S. PAT. OFF.
HOT-POURED RUBBERIZED SEAL

PARA-PLASTIC is the ORIGINAL hot-poured rubber seal for concrete expansion joints.

PARA-PLASTIC remains flexible all year 'round. Its elasticity is permanent in any temperature without breaking its bond with concrete.

PARA-PLASTIC is the positive and permanent top seal for concrete expansion joints all year 'round against the infiltration of water.

Write for further technical information

"STICK" WITH THE ORIGINAL ALL YEAR 'ROUND

See Our Catalog in Sweet's

SERVICISED PRODUCTS CORP.
6051 West 65th Street Chicago 38 Ill.

(*Continued from page 172*)

design reportedly makes it impossible to insert lamp without positive contact — if the lamp does not make contact it will not stay in the socket. Allied Electric Products, Inc., 76–82 Coit St., Irvington 11, N. J.

SASH BALANCE

The *Hidalift* balance for double-hung sash is of metal construction and operates on spring tension, thus eliminating weight boxes and gaining about 4 in. in window width. Constant tension gives the sash a "lift," making it easier to raise heavy windows. All parts are rustproofed and the spring is sealed in tubing to prevent wear caused by dust. Standard size is Type No. 58, which will carry sash as heavy as 30 lb. Balances for special and odd-size sash can also be obtained. Turner & Seymour Mfg. Co., Torrington, Conn.

ELECTRIC WATER HEATERS

Table-Top Model

A new electric water heater measures only 24 by 24 in. and is the height of a table so that it may serve double duty in kitchens by providing an additional work surface of porcelain enamel. Features include thermostatic control, with an adjustment range of 120° to 170° F., an immersion-type electric heating element, Fiberglas insulation, and a cold-water baffle. The tank is of galvanized copper-bearing steel, and has a 40-gal. capacity. Electric Appliance Div., Westinghouse Electric Corp., Mansfield, Ohio.

"Heat-Wrap" Tank

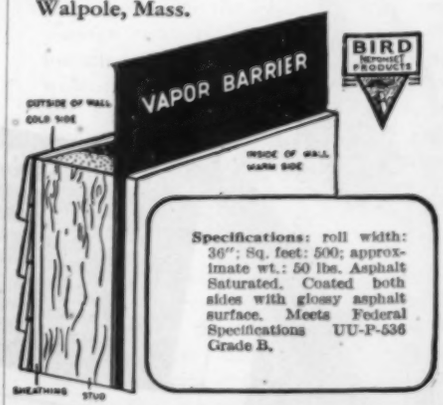
Tank walls are used to conduct heat to the water in a redesigned line of electric water heaters. Heating unit consists of "Heat-Wrap Calrod" in ribbons that encircle the tank and are held tight against its surface by stainless steel channels. Advantages are said to be increased heat efficiency and the elimination of corrosion of the heating element. The following capacities are announced: with galvanized tanks, 15-, 30-, 40-, 52-, 66-, and 82-gal.; with Monel tanks, 30-, 40-, 50-, and 80-gal. All heaters are round with the exception of the 30-gal. rectangular table-top model. Also announced was a means of providing magnesium protection for galvanized tanks in corrosive-water areas. A special magnesium-alloy tube can be installed in the tank, which sets up an electrolytic action and in time coats the wall with a protective magnesium coating. Appliance and Merchandise Dept., General Electric Co., Boston Ave., Bridgeport 2, Conn.

(*Continued on page 176*)

Vapor Condensation

but RUINOUS WITHIN WALLS

When moisture vapor "steams up" windows it does no harm, but if it condenses within building walls it can be a four-way evil. Yes, "in-wall" condensation can make insulation soggy and inefficient, cause wall stains, paint peeling — even structure rot. One sure way to beat this building bugaboo is with a *separate* vapor barrier. Standard with architects everywhere is Bird Neponset Black Vapor Barrier. Applied on the warm side of insulation, Bird Neponset Black repels vapor, keeps insulation at peak efficiency, ends all other "in-wall" condensation evils. Only about $20 buys life-long protection for a $10,000 building. Specify the standard — Bird Neponset Black Vapor Barrier. See Sweet's Architectural file, 9b-2, or write for sample to Bird & Son, inc., 176 Wash. St., East Walpole, Mass.



Specifications: roll width: 36"; Sq. feet: 500; approximate wt.: 50 lbs. Asphalt Saturated. Coated both sides with glossy asphalt surface. Meets Federal Specifications UU-P-536 Grade B.

BIRD NEPONSET BLACK VAPOR BARRIER

BIRD & SON inc., E. WALPOLE, MASS.
CHICAGO NEW YORK SHREVEPORT

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(*Continued from page 174*)

PRINTER DEVELOPER

The Model 91 BW *Volumatic Printer-Developer* is designed for large-volume production of cut sheets, and accommodates roll stock up to 42 in. in width. It prints and develops all Bruning BW media: light, regular, or card-weight BW paper prints with black or colored lines on white backgrounds, black or colored line paper prints on green-tinted backgrounds; transparent paper prints; and cloth or film prints. Prints are produced in volume at speeds up to 30 ft. per min. The following operating improvements were announced: new enlarged feed board, simplified control, increased light efficiency, and improved developing technique. Charles Bruning Co., Inc., 4754 Montrose Ave., Chicago 41, Ill.

SHOWER CONTROL VALVE

The danger of scalding and discomfort of chilling in shower baths, due to sudden pressure drops, is reportedly eliminated when an *Aquatemp Control Valve* is installed in the shower fitting. The valve is pressure-operated, and is said to be adaptable to any type of fitting. Milton-Griffith Co., 8619 Mack Ave., Detroit 14, Mich.

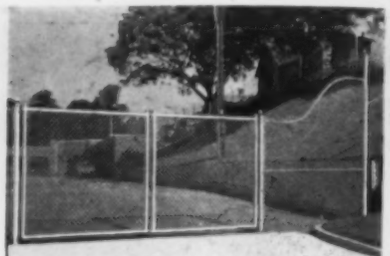
STANDARDS

Convectors

A new commercial standard, CS140–47, on "Testing and Rating Convectors," is now in effect, after acceptance by a majority of representative user organizations, testing laboratories, government agencies, distributors, and manufacturers. This standard covers definitions, requirements, and methods of testing and rating cast iron and non-ferrous steam and hot water convectors; also means of guaranteeing compliance with the standard, and checking convector ratings for approval. National Bureau of Standards, Dept. of Commerce, Washington 25, D. C.

Wire Screens

A minimum commercial standard for insect wire screening is now being distributed to hardware and building supply dealers. Three mesh sizes — 16 by 16, 18 by 14, and 18 by 18 — may be labeled as standard under Commercial Standard CS138–47, which was voluntarily adopted by the industry and promulgated by the National Bureau of Standards. The standard metals are galvanized steel, and commercial bronze and copper. Wire thickness is specified as .011 in. Insect Wire Screening Bureau, 74 Trinity Pl., New York 6, N. Y.



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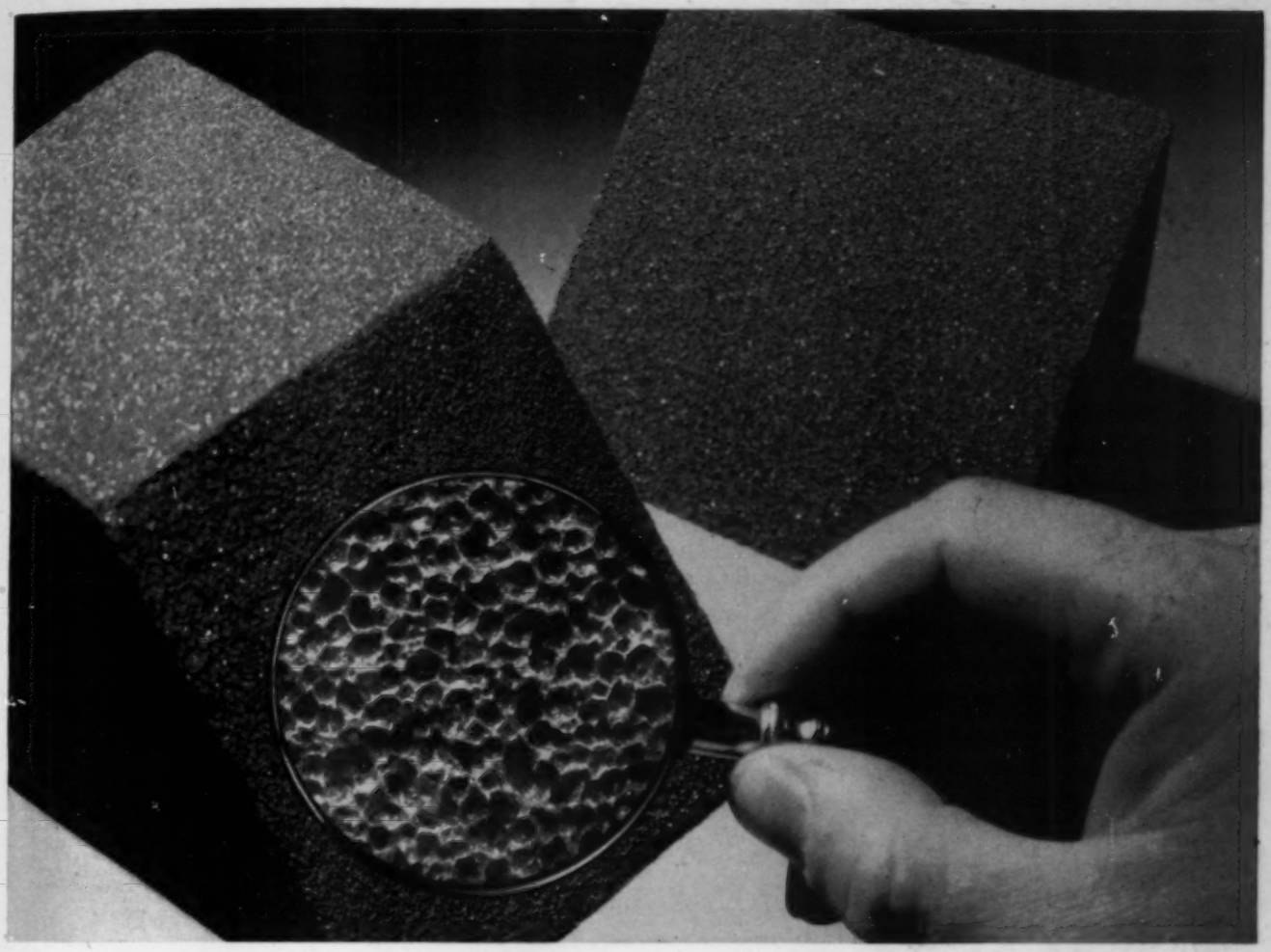

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